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An Occupational Survey—*Robert C. Clothier*

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The Irrational Factor in Society

By Elton Mayo, *Professor of Psychology in the University of Queensland*

That sanity is an achievement rather than a merely natural condition of mind and that the recognition of the irrational and abnormal elements in the normal person is essential to an understanding of many modern personnel problems are among the contentions of the present article.

This article is the first of a series by Elton Mayo, late of the University of Queensland, dealing with the psychiatric approach to personnel problems in modern industry. Mr. Mayo has been working for a number of years on psychiatric problems and is especially interested in their implications for industry. He is at the present time with the Department of Industrial Research at the Wharton School of Finance and Commerce, University of Pennsylvania.

The specific point of the first article is that while it may be essential to deal with the recognizably abnormal—the psychopathic individuals in industry, this is not the sole or even the primary function of the industrial psychiatrist. On the contrary, the study of abnormalities simply gives us a deeper comprehension of processes which take place even in individuals that are regarded as normal. To disguised and incompletely developed tendencies which go undetected and which therefore do not receive special care and education, Mr. Mayo attributes the great mass of industrial maladjustment and both organized and unorganized industrial discontent.

The second of the series of articles, entitled "Irrationality and Revery" will appear in the next issue of the Journal of Personnel Research.

IT IS something of a paradox that democracy, at the moment when it has risen triumphant over the ashes of European monarchy, should be most dissatisfied, most critical of itself. Yet it is well that it should be so; it is a sign of health in the body politic. Ever since the industrial revolution of the eighteenth century, there has been a continuously growing conviction of defect somewhere in the industrial organisation of society. In the nineteenth century, the new-found enthusiasm of social philosophers served to conceal, in the main, this conviction of error. Yet Ruskin,

Carlyle and William Morris voiced a dissatisfaction that was not merely theirs. In our time social criticism has become much more clearly explicit. Even in their pre-war publications, such writers as Graham Wallas, Brooks Adams and C. F. G. Masterman expressed a profound doubt as to the capacity of the social fabric to hold together. And nowadays one hears criticism everywhere. "Industry should be the servant not the master of humanity;" "democracy is designed to secure the distribution of social predicates, so that the good of the State as a whole is not inconsistent with the good of individual citizens:" assertions such as these have become commonplace.

Civilisation implies a twofold effort: it is a struggle for individual expression and a struggle for material control. On the one hand man finds himself surrounded by natural forces which he must understand if he is to adapt them to his purposes. On the other hand he finds just such natural forces, though of a different type, within himself. Here also if he is to control he must first understand. To say that the forces which make for civilisation or anarchy are all human forces and take their origin in the human mind seems something of a truism. Yet this must be said, if only for the reason that its truth is so often forgotten or ignored. The struggle of civilisation has been so strongly directed, and of necessity, to conquest of the material forces of nature that we are apt to look only at the material factor; we are apt to forget that it is only so long as it seems worth while to the human mind that the material struggle will continue. A progressive society is, in the ultimate, an energetic and a happy society; the other way lie melancholia and decadence. Human emotions determine human destiny; life must be sufficiently interesting to the average man and woman if civilisation is to endure. Our material triumph has been too greatly confined to the material. Signs that the elaborate industrial structure serves to conceal a measure of unhappiness, and perhaps even of despair, are not lacking. We term such symptoms social unrest. The object of personnel research, one must suppose, is to see to it that our understanding of the human problems of civilisation is at least equal to our understanding of its material problems. The easy assumptions of the nineteenth century political scientists and economists will no longer serve. Knowledge of the human consequences of industrial elaboration, knowledge based on direct investigation—this is the one and only way.

This statement would seem to make personnel research coextensive with human work and welfare—a broad study. I believe that personnel research should, and ultimately will, so extend its boundaries. In every sphere of human effort, difficulties of maladaptation and maladjustment tend to arise. Many such difficulties are due to causes that may be termed historic and remain unknown to the individual. All that he is clearly aware of is unease or discomfort; he protests, probably in some quite irrelevant manner, against such discomfort and frequently attributes his misfortunes to some other individual

or group. And a difficulty of this type in one department of life tends to make itself felt elsewhere in the social system. Research is needed to discover what is really wrong. Consider, for example, the gradual change which has overtaken the home life of the community since the advent of large scale industry and the modern city. Working women can no longer help each other as they did; daughters do not stay at home. Wives of professional men can no longer hire assistance easily. As a consequence, at least in part, of these changes there has grown up a weariness of household drudgery that shows itself in a variety of ways—hotel and apartment life, divorce and so on. I am of those who believe that an investigation of the human aspect of this problem would yield much of knowledge and of suggestion for improved domestic happiness and comfort. The whole of human endeavor demands personnel research.

But this type of investigation merely illustrates the wide importance of the study and is not the primary objective. The primary objective must naturally be the factory and the commercial organisation which supports our civilisation. The social structure is at present permeated with unnecessary suspicion and distrust, factors which go far towards making strikes and disorder inevitable, and which are often exaggerated rather than diminished by the methods of so-called democracy. It is unfortunately easy to illustrate the damage done by ignorance and misunderstanding and the exacerbation of the situation by well-intentioned political interference. Between the years 1890 and 1895 in Australia there occurred, first, an overinflation of land values followed by a disastrous financial "smash" and, second, two of the most serious industrial disruptions ever known in that part of the world. Defeated in these strikes, the workers decided that it was necessary for them to have representatives of their own class in the political arena; and the Australian Labour Party came into being. Since that time Labour has gained steadily in respect of power and numbers and at present, in Federal politics and in every State, there are in effect two parties only, Labour and its opponent. It is difficult to see how this condition of affairs could have been avoided; it is part of the penalty we pay for the general ignorance, among all classes, of the real historic significance of democracy. But the effect has been undeniably bad. The industrial difficulty has been generalised as the only ultimate political issue. An ever-widening rift has split the social structure. On the one side stand the employing and professional classes, on the other the laboring classes. Between them is a great gulf fixed across which no group or section as such holds out the hand of friendship to another. This political development has obscured the social function of industry, it has increased mutual suspicion and dislike between classes and has introduced into "democratic" party organisation irrationality and emotion far beyond what is necessary. Every election tends to be conducted upon the lines of a "class" campaign. In the Queensland election of March, 1918,

the Labour Party was accused of an intention of appropriating the savings of the middle classes. Labour won the election and immediately thereafter a "run" upon the State Savings Bank began and continued for more than a week. No reassurance could turn the crowd from its purpose; it was numerous enough to require police supervision. This "run" was quite unjustified by anything in State finance, it was motived entirely by unreasoned fears aroused in electors by the political campaign. It is this same species of unreason which operates in every industrial difficulty. Neither the advent of Labour to ministerial office nor the creation of a Compulsory Arbitration Court have diminished the number of strikes in Australia. On the contrary, misunderstanding and suspicion are more widespread, and run deeper, than before.

Psychologists of the "crowd" and "herd," after considering such facts as these, have drawn the conclusion that every social situation is complicated by the intrusion of factors of "unconscious irrationality" or "crowd suggestion." They claim also that such factors of unreason are instinctive or inborn: LeBon, for example, asserts that "unconscious phenomena play an altogether preponderating part . . . . in the operations of the intelligence. The conscious life of the mind is of small importance in comparison with its unconscious life." (The Crowd pp. 30–31) He develops his argument by claiming that individuals of the same race all resemble one another in respect of these "unconscious" mental elements. Consequently the "collective mind," that is, the deliberative opinion of any unspecialised assembly, is determined not by the special capacities of special individuals but by the "unconscious" mental elements which are the common possession of its race. This opens the way for his entirely unwarranted conclusion that "the decisions affecting matters of general interest come to by an assembly of men of distinction, but specialists in different walks of life, are not sensibly superior to the decisions that would be adopted by a gathering of imbeciles" (p. 32). It is intolerable that nonsense of this description should gain a serious hearing, as if it were a real contribution to social psychology. Had there been no investigation of irrational impulses, there would perhaps have been some excuse for the a priori methods of LeBon and his like. But his neglect of the researches of Braid, Charcot, Janet, Freud is inexcusable; for more than half a century psychiatrists have been engaged upon an inquiry into the mental mechanisms which emerge in thought as delusion and in action as eccentricity. And a mass of evidence exists which flatly contradicts LeBon's assertion that the irrationality of a crowd is native or instinctive. While it is true that factors of unreason play a part in every industrial dispute, it is completely false that such factors are inborn and the common possession of the race. They are as much the product of education, in a broad sense, as a knowledge of Greek. To every individual his own particular variety of unreason. The fact that a skilful orator can mould the various impulses to a common pattern, or induce them

to issue in a mass activity, does not in any sense, justify the conclusion that in every individual an identical impulse is at work. The same criticism applies to the crowd-psychologists' use of the idea of suggestion. Every psychiatrist who has made use of hypnosis knows that a curative suggestion is determined to success or failure by the developed mental dispositions of the hypnotised subject. If such subject happens to possess a "line of thinking" more or less in accord with the suggestion, he will probably accept it. But if the idea is strange to him, then all the suggestion in the world will pass him by, will leave him unaffected. Lloyd Tuckey cites a case in which he attempted to induce hypnosis sixty times before he succeeded. He concludes that "anxiety" cases are difficult to hypnotise, but that the effort is worth while—since this particular patient finally "accepted" the suggestion and recovered. It is more than probable that the final success in achieving hypnosis was not the cause of the recovery, but a symptom of it. The discussion and endeavors which filled the repeated visits probably sufficed to bring into being a new and more normal mental attitude, an attitude which merely revealed itself in the capacity to achieve hypnosis. The same may be said of the much-discussed "autosuggestion" of Coué. Where Coué's method succeeds, the success is probably due to the achievement by the patient of a new and more healthy-minded course of reflective thinking and is not an evidence of the marvels of "suggestion."

We may therefore dismiss as superficial and irrelevant the theories of the crowd psychologists. Their writings point, it is true, to the need for psychological investigation of the unreason which complicates and clogs our individual and social activities; but crowd-psychology contributes nothing to such investigation. The work of the psychopathologists, on the other hand, is directly relevant and demands careful consideration. It has the additional merit of being an empirical study, descriptive of facts and cases; it is not overloaded with theoretic elaborations.

The application of psychology to any human problem is at present sadly hampered by the fact that the majority of psychologists are over-specialised. For a century at least there have been two psychological investigations—the academic and the medical, and the tendency has been for the individual psychologist to confine himself strictly to one or other of these. The outlook and the methods of the two investigations are utterly dissimilar. The academic investigator is interested in what we are "conscious of"—the mental hinterland. The method of the academic is to induce an individual to concentrate his attention on some problem in order that the investigator may examine the process of attention and thinking. Janet's "method of distraction" is typical of the medical investigator; he induces concentration in order that he may disregard it and investigate what is happening behind the scenes in the mental hinterland. Jung's "association

method" and Freud's "dream-interpretation" are only elaborations of the method of distraction. Medical psychologists since Janet have developed this characteristic method because they have learned that only so can they discover the mental mechanisms which give rise to irrationality and delusion. In general it may be said that the academic psychologist investigates processes of reason, and the medical processes of unreason. This latter fact shows the direct relevance of the medical research to the topic of this paper.

If the research which stretches from Braid to Charcot, Janet and Freud be closely examined two interesting facts stand revealed. In the first place, the investigation has been conducted in the main by members of the medical profession and, perhaps for this reason, the initial assumption has almost invariably been that hysteria and "nervous breakdown" are nervous or organic rather than mental ills. And in almost every instance, the investigator has been led finally to adopt the contrary view—that "nervous breakdown" is, more often than not, mentally caused. Braid abandoned his "hypnosis" theory for "monoideism," Charcot and Janet began with a theory of a nervous trauma or shock to the nervous system; Janet finally elaborated his interesting and important theory of mental "dissociation" or split consciousness. As they gather experience, one finds a diminishing emphasis on the organic factor. This does not mean that the organic factor in hysteria is unimportant, that it is not in many instances its sole cause. It means rather that mental ills may come by maladaptation to the environment, that such maladjustment may cause mental disintegration as surely as organic defect or disease. It means, in other words, that education, in the broadest sense of that term, is far more important than has hitherto been supposed. By education we achieve not merely knowledge but also mental health. Sanity is an achieved, rather than a merely natural condition of mind.

This leads up to the second interesting fact or discovery of medical psychology. The education that is so extraordinarily important for mental health or disease is the education that comes by revery rather than by concentrated thinking. What the psychiatrist does when faced by a case of mental disorder, properly so-called, is, first, to discover if possible the locus of maladjustment and, having discovered this, he endeavors to find out the nature of the reveries that have been substituted for real experience. Psychopathology has discovered that *it is not only the real, but also the imagined situation which determines individual development.* This is especially true of the reveries of infancy and adolescence. The supposition is that all the native capacities of the infant, adolescent or adult have achieved some sort of development. Development may have come by way of direct experience of objects and situations, or by way of reveries substituted for such direct experience. And the resulting mental capacities may be inconsistent, conflicting or inchoate. To discover the exact mental situation is the task of the psychopatholo-

gist; his technique has been developed with that end in view.

In this modern world of ours it is obvious that everyone, save perhaps a fortunate few, is likely to have failed to achieve a perfectly normal orientation to his surroundings. Civilisation is, of course, psychologically based on the advantage that accrues from the inhibition of crude expressions of racial tendency. But a total inhibition which denies even a sublimated expression is no advantage and carries as a consequence a substitute development in unacknowledged revery. These reveries, because they are unacknowledged and seem to be unknown to the major personality of the individual are termed by the Freudian school "unconscious." Developed mental capacities of this unacknowledged type seem to be the source of irrationality and conflict. A girl of twenty-five years of age, referred to me for examination, complained of a fear of insanity which had developed steadily from the time she was sixteen. She also suffered from insomnia and rigors. She said that she had suffered no organic illness, nor was there any history of mental trouble in her family. She herself was well educated and admitted at once that the fear was irrational. "But," she added, "it's there and I can't get rid of it." Further inquiry showed that no one had explained the facts of adolescence to her and certain symptoms in herself which she did not understand had "explained" themselves in revery as abnormality. She speedily recovered, once the unacknowledged revery was brought to light. It is important to note in this, as in every case, that the symptom or manifestation does not usually bear any logical relation to the source of the disorder.

On another occasion I was asked to see a professional man of high standing and ability by his medical attendant. He was said to be unable to leave the house, so I visited him. I found him in bed, extremely restless. When asked why he did not get up, he replied that he was afraid of being "hit by a meteorite." He was reading the article on meteorites in an encyclopaedia and finding small comfort in it. The fear of meteorites had a history of development in revery from the age of four to the age of thirty-seven, when the "breakdown" occurred. But this again was no more than a symptom. His real disorientation to life was the effect of a life-long revery which depicted him as an utter and complete failure in all his undertakings. He also has recovered since this unacknowledged revery was brought into focus for purposes of reasoned discussion. But it is not necessary to investigate cases of "breakdown" to discover reveries of this type; none of us entirely escapes the burden of unknown and unwelcome mental development. Recently I questioned twenty individuals, mainly graduates, men and women in equal numbers with a view of discovering the incidence of suicide reveries. There was not one who could not tell me instantly the form of suicide he or she would choose, should suicide ever become necessary. They were able to support their choice with a wealth of argument and discussion. Yet all of them were happy, healthy and quite free

from suicidal intention. In four of them, there was evidence of probable murder revery; these four were all young.

I shall have occasion to reconsider this point subsequently. For the present I wish merely to make clear the following claims:

1. Individual and social situations are complicated by the intrusion of irrational motives and delusions.

2. Irrational impulses of this type are not native or instructive. They are the product of education and development.

3. The type of "education" which gives rise to unreason is the education that is achieved by unacknowledged reveries—such reveries being substituted for real experience.

4. No one, whether ranking as normal or abnormal, is entirely free of such unreason. The greater the ignorance and restriction, the wider is the dominance exercised by unreason.

Organization for an Occupational Survey

By Robert C. Clothier

Mr. Clothier, in the introductory sentences of his article, disclaims for it any particular merit as announcing the results of completed research, dismissing it as "a simple statement of organization and method." Those acquainted with the personnel field will appreciate how rare simple, illuminating and, one might add, modest statements of this sort really are.

The special value of the present article lies in that it sets forth how a complicated and technically difficult occupational survey was planned, organized and carried out. It deals not only with the instruments employed but shows the organization and the methods that made the use of these instruments effective. Though the article may not announce research completed, it serves a useful purpose for research in showing how such a survey (1) provides a background against which the value of undertaking more intensive studies may be judged, and (2) furnishes data as some of the raw material for further studies.

Interest in the present article is heightened by the fact that its execution involved the organized cooperation of two distinct branches of our federal government, the Army Air Service on the one hand and the Civil Service Commission on the other.

Mr. Clothier was, during the war, a member of the Committee on the Classification of Personnel. He is now Vice-President of the Scott Company.

THIS is a narrative of the procedure followed in the creation recently of certain personnel instruments at McCook Field, the experimental station of the Air Service at Dayton. It is not a story of accomplishment. It is not a statement of research completed. It is a simple statement of organization and method.

By way of introduction, the reasons for the work are summarized as follows: primarily, civilian employees are required to have a Civil Service status and there were difficulties in the way of a complete understanding between the administration at McCook Field and the Civil Service Commission as to the minimum requirements for the several hundred positions at the Field; it had not been practicable before to complete a study and report of such requirements. By the same token, ease and accuracy

of selection for employment, transfer and promotion were difficult of attainment; the facts of the occupations were not in hand. Again, by the same token, it had not been possible for the administration to develop a comprehensive promotional plan.

Furthermore it was very desirable from the viewpoint of the budget, that a method of payroll control be developed which would serve to make it easier to achieve payroll economy by visualizing the expense situation within each occupation. Again, an accurate classification of the 1200 civilian employees of the Field was desired. And lastly, it was evident that any simple, practicable means of acquainting the applicant or employee with the nature of the position to which he was being employed, transferred or promoted, would be a very great help in the prevention of turnover.

It seems proper, similarly, to have an idea in advance of the nature of the personnel instruments which the work produced. Briefly these were: Occupational Descriptions for the several hundred occupations present at the Field, a Salary Control Chart or "Spot Chart," a Promotional Chart, an Index of Occupations and an Occupational Census (or list of the employees at the Field classified according to their proper occupations). There accompanied these instruments a comprehensive set of instructions covering their construction, use and maintenance.

The general control of the work was under the direction of a group of consultants who had had extensive experience in this kind of work. Their part was that of planning, organization, supervision and coordination. The administration at McCook Field provided adequate office space and working quarters and made available the necessary typists' and clerical service, and a staff of ten capable and intelligent men to act as interviewers; in addition the Civil Service Commission furnished the services of two of its representatives. The "questionnaire method" was not considered owing to its recognized limitations.

THE BEGINNING OF THE WORK

These interviewers were well selected from the viewpoint of education, experience, personality and interests—four factors, incidentally, which are of the same importance in this work as they are in any other occupation.

The first step was that of holding a "vestibule school" for the interviewers in order to acquaint them with the nature of the data to be secured from the employees at the Field as to their positions, the ways and means of securing this information and the form in which this information should be condensed and written up into Occupational Descriptions. It is understood, of course that the Occupational Description was the first objective of the work; that the other instruments named above are built upon and around the Occupational Description. As much information as could be imparted was given to the interviewers through the vestibule school; this occupied most of one day. The rest of their training took the form of "training on the job" through frequent conferences with the consultants.

Previously, the administration at the Field had prepared a list of the employees classified according to their occupations so far as those occupations were then known. As a basis in approaching this work, it was assumed that "what is is right until it is found to be wrong." Consequently, it was adopted as a policy that these classifications should be regarded as the correct classifications until the investigations of the interviewers revealed in what ways they were incorrect. So arbitrary code numbers, 001, 002, 003, etc., were given these occupations for the purpose of identification, throughout the process of analysis and reclassification. It is quite impossible to overestimate the value of this device. Freedom from misunderstanding and ambiguity in this respect characterized the work from beginning to end.

It was entirely natural, of course, that the classifications shown on this list were found to be inaccurate in a number of cases. The Civil Service classifications had been used principally. The transfer of men from occupation to occupation had not always been reported by the foremen and executives. Duties had changed. And the occupational titles had in many cases grown like Topsy.

In the assignment of occupations to the interviewers two well-defined principles were observed. First, the simple, obvious occupations were assigned in the beginning in order that the interviewers might become familiar with the work before attempting the more involved and difficult analyses. Second, to each man were assigned the occupations for which he seemed particularly fitted by reason of his education, experience, personality and interests.

The day following their "graduation" from school, the interviewers set forth in their quest for facts. Simultaneously three charts were posted on the bulletin board in the office:

First: An assignment list, showing the complete list of occupations assigned to each of the interviewers. It became the practice to cross off the occupations as they were completed.

Second: A preliminary chart on which the occupations were listed down the left-hand column and the status of the Occupational Description—"Begun," "Interview Completed," or "First Draft Completed" —entered by check in the appropriate column.

Third: A consultation chart on which the day was broken up for each interviewer into investigation periods, drafting periods and consultation periods. It was recognized that frequent conferences with the consultants would be necessary, especially during the earlier stages of the work. The real purpose of this chart was to stagger these conferences so that each interviewer would have all the opportunity he wanted to confer with the consultants and that the maximum use would be made of the consultants' time. The principle of this chart was observed throughout although the time periods had to be regarded as extremely elastic.

THE BASIC INSTRUMENT—THE OCCUPATIONAL DESCRIPTION

It is proper, now that the interviewers have started out to secure the needed information, that con-

sideration be given here in our narrative to the nature of the Occupational Description itself. Any discussion of its nature necessarily involves a recognition of its purposes. Briefly, it may be said that the Occupational Description was to serve these purposes primarily:

First, to establish a common job-language between the Air Service and the Civil Service Commission.

Second, to aid in selection; to permit the choice of workers with a full knowledge of the duties they are to perform and of the personal qualities the work in the various positions demands.

Third, to acquaint the new employee with the nature of the work to which he is to be assigned; to prevent those flarebacks occasioned by the employee finding the work or the working conditions different from, and less acceptable than, those which he had anticipated.

Fourth, to assist in the determination of equitable salary ranges for the various positions.

Fifth, to make possible the development of an adequate promotional plan.

Figure 1 shows a typical Occupational Description. It will be noticed that the check system was avoided in the final draft, although it will be seen later how the check principle was used in securing the information. For purposes of operation the simple declarative form of expression has been found more expressive and easier to understand than participial phrases and other forms of abbreviated English.

At the top appears the occupational title. Wherever practicable the title in use was continued. Each title, however, was required to satisfy three standards: first, descriptiveness; second, consistency with the titles of other occupations; third, brevity.

In the upper right hand corner appears the occupational code number used for purposes of identification and quick reference. In the upper left hand corner appears the name of the interviewer who prepared it; the purpose of this entry is, primarily, to know who can best be assigned to the task of revising the Occupational Description when the time for checking up arrives. It is appreciated, of course, that the work in most positions is in a state of more or less change and that periodic reviews are needed to reestablish the accuracy with which the Occupational Description reflects the facts of the position.

In the space immediately below the title are entered the names of the Sections, Branches and Units in which the occupation occurs.

For the moment pass over the box entitled "Minimum Requirements." We shall return to it.

It will be observed that the body of the Occupational Description resolves itself into seven parts: Duties, Hours, Minimum Requirements, Additional Qualifications Desired, Working Conditions, Principal Lines of Promotion and Salary.

With reference to that section of the Occupational Description entitled "Duties," due consideration was given to the fact that it is impossible to select employees properly for a position unless the statement of requirements is supplemented by a statement of the duties. Selection and place-

Prepared by Lewis

Date _____

WAR DEPARTMENT
Air Service, Engineering Division
McCook Field, Dayton, Ohio

Symbol 156

Occupation JUNIOR RADIO ENGINEER

Occurring in:

SECTIONS	BRANCHES	UNITS
Equipment	Radio	

MINIMUM REQUIREMENTS							
Ed.	Exp	Jdg.	Ac	H.A.	Phys.	W.E.C.	
A	E	C	C	E	C	B	

Duties

The development of radio technique by the Air Service is the responsibility of the Equipment Section, Radio Branch.

Under supervision, the Junior Radio Engineer carries on general research and investigation with reference to radio and allied work. He assists in testing all new and existing equipment and has charge of installation of all types of radio equipment in airplanes. He also performs laboratory experiments with reference to reconstruction and improvement of various types of transmitting and receiving apparatus. He carries on tests in radio finding, radio control and relay work; performs his work both aloft and in the laboratory.

Hours

8:00 A.M. to 12:00 M.)
12:00 M. to 12:45 P.M.) Monday to Friday
12:45 P.M. to 4:45 P.M.)
8:00 A.M. to 12:00 M. Saturday

Minimum Qualifications

The Junior Radio Engineer must have graduated in physics or electrical engineering from a college or university of recognized standing. In lieu of college graduation in physics or electrical engineering, there may be substituted graduation from high school and at least four years' subsequent (or graduation from a college or university of recognized standing in a course other than physics or electrical engineering and at least two years' subsequent or concurrent) training and/or experience in physics, electrical engineering, or allied sciences, of such character as to give a solid foundation for radio work, and advancing in accomplishment comparable to the progression of a complete college course.

Male, age 18 to 45.

Additional Qualifications Desired

He should be familiar with the various types of Air Service radio Equipment and should have some practical knowledge of aviation and airplane performance; soundness of judgment, open mindedness and accuracy in the interpretation of findings are qualities desired in this work.

Working Conditions

Indoors and outdoors; seated and standing; laboratory and flying.

Principal lines of Promotion

From: Radio Mechanic 137
To: Assistant Radio Engineer 018

Salary

T. S. Co. - 923

McCook Field-11-11-23-800

Approved by Arthur S. Johnson Ch. of Sect. E.G. Dauphine - Air Serv. I. Baruch Civ. Serv.
1st Lt. Air Service

FIG. 1

ment is not a mechanical task, as is implied by the obsolete "pegs and holes" theory. Judgment must be used and the exercise of judgment demands knowledge of the duties the individual is to perform. In like manner, knowledge of duties is required for the purposes of acquainting the new employee with the nature of his position, establishing salary limits and developing lines of promotion.

With reference to the statement of duties, the following passage is quoted from the Letter of Transmittal accompanying the Occupational Descriptions:

> It will be noticed that the section entitled "Duties" gives a statement of *function* rather than a recapitulation of the *details* of operation that go to make up those functions. Details of this kind are frequently more misleading than informative; what the Employment Department and the prospective employee and the rate setting agency want to know is what the employee does, not the minutiae of how he does it.

In each position the degree of supervision required has been ascertained and indicated in the description of *duties*. We have recognized the six degrees of supervision or direction acceptable to the Civil Service Commission. To permit a clear understanding of the phraseology employed, we give here the following definitions.

Immediate supervision. The degree of supervision that an apprentice, a clerk learning office routine, or a copyist draftsman receives. It is not expected that the employee will use much initiative, and this faculty is watched until the supervisor is sure it is being used in the right direction. Immediate supervision involves close watch over all the specific details in the work—what duties are performed, how they are performed, step by step.

Supervision. The degree of supervision that a new clerk receives after the first uncertainty is over, and the supervisor feels that the clerk is "catching on." Supervision does not involve so close a watch over *specific* details, but general phases of the work are controlled by constant reference to the supervisor for advice and decision.

General supervision. The degree of supervision flowing from foreman to journeyman. The worker here begins to assume his share of responsibility. He is supposed to know the mechanics of his job and to exercise that knowledge without advice or spur. The means of accomplishing a given object is usually left entirely to the worker.

Direction. The degree of supervision exercised over a trained worker by his administrative chief or section head. A definite object is set, and the worker is left to go ahead, in conformity with policies with which he has no recommendatory connection. It is expected that there will be need for frequent conference both as to general phases of the work and specific details.

General direction. The degree of supervision exercised over a section head by his administrative chief. The latter expects a finished product without appreciable reference even as to general features and with practically no reference as to the specific details of how the work is to be accomplished.

General administrative direction. The degree of supervision exercised over a trained technical man by his administrative head. General Administrative Direction lays emphasis on the fact that the technical features of the work are practically all in the hands of the worker. It is illustrated by the direction the President of a manufacturing corporation might exercise over the Chief Engineer.

It will be observed that the simple indicative mood, active voice has been employed in the statement of duties.

The section entitled "Hours" has been provided principally for the information of the new employee. The construction of the Occupational Descriptions, however, has in instances yielded information, previously unappreciated, to the effect that in certain positions and under certain conditions unnecessarily long or otherwise unwholesome hours were in effect.

The section entitled "Minimum Requirements" gives information as to the qualifications a person *must* possess to be considered for the position at all. Here a statement is given first of education required and experience required. This is followed by a statement of such personal qualities as judgment, accuracy, supervisory ability and physical qualities. Only positive statements were made. Where a given quality is *not* needed, no reference was made to it.

Continuing from the letter of transmittal:

> It will be observed that alternate formulae of requirements have been presented where it has been possible to do so. The several alternatives (or "equivalents") have been graded down from the most desirable to the least desirable. These alternatives have been provided in order to permit the candidacy for a given position of as many properly qualified persons as possible.

In the process of selection, however, more information is needed than is contained in a statement of the bare necessities. In practically all positions there are other *desirable* qualities which cannot be regarded as essential:

> The section entitled "Additional Qualifications Desired" record those further qualifications, over and above the Minimum Qualifications, which it is desirable for the incumbent to possess. It is the judicious consideration of these additional qualifications which will make possible the selection of employees equipped to render especially efficient and economical service.

The next section of the Occupational Description, "Working Conditions," is self-explanatory. This information is primarily for the benefit of the prospective employee and for purposes of salary determination.

With reference to "Principal Lines of Promotion," we quote again from the Letter of Transmittal:

> The section entitled "Principal Lines of Promotion" will be of great assistance to the Employment Department in developing a promotion policy (which is essential to morale and continued efficiency) and illuminative to the prospective employee in visualizing the possibilities of his position *provided he qualifies himself for them.*
>
> It has been found that an employment department can more readily secure applications and can more readily create contentment if a definite system of promotion exists. It is better for the employment department to watch those persons already employed when openings are likely to occur and to have suitable employees trained for advancement to those positions rather than to be obliged to go outside in the search for qualified persons.

And lastly, with reference to "Salary:"

> No figures have been entered under Salary, in view of the fact that the salary ranges are in a more or less uncertain state and are subject to revision according to the wage study which is proposed by the Planning Section and the Employment Department. When the salary ranges have been set, they should be typed on the Occupational Descriptions in the space provided.

With this general picture of the form and content of the Occupational Description in mind, we are ready to return to the box at the head of the Occupational Description entitled "Minimum Requirements." The administration at McCook Field had long had in contemplation a wage study embracing all the positions at the Field. It was naturally desired that the Occupational Descriptions should be made to serve the purposes of that study. Consequently the technique about to be described was adopted in order to reveal to the wage setting board the salient facts in each position affecting proper wage rates. This can best be described by quoting again from the Letter of Transmittal:

> No mechanical method of determining wage ranges can be successful. Formulae will not suffice. The problem calls for judgment, the best we can bring to bear upon it. Judgment is apt to be good when it is founded upon facts rather than upon approximations and guesswork. Our purpose in suggesting the approximate value of these seven factors in each occupation is to yield some of the facts which the Employment Manager and the members of the Planning Division should consider when they sit down to set the salary ranges for the different occupations.
>
> This information is presented in abbreviated form in the box at the top (left) of each Occupational Description which bears the caption "Minimum Requirements." This box is broken down into seven compartments, one each for the seven factors within each occupation which should be considered in setting salary ranges: Education Required, Experience Required, Judgment Required, Accuracy Required, Supervisory Ability Required, Physical Qualities Required, and "Objectionableness" of working conditions (danger, health hazard, unpleasantness, etc.). In each box is a letter indicating the degree to which that factor apparently exists in the position. Generally speaking the letter A indicates that the factor in question exists in maximum degree; the letter F indicates that it exists in minimum degree.
>
> The key to each letter in each of the seven factors is given in the following table. Naturally these equivalents must be interpreted liberally. In fact the equivalents can never be used in place of the text. They may serve, however, as a convenient means for comparing related factors in various occupations, and when so used, they will indicate what factors should be given especial consideration in the further development of selective processes, training programs, promotional plans, and wage studies. The table:
>
> *Education*
>
> A. Graduation from college.
> B. Graduation from high school.
> C. Two years' high school.
> D. Graduation from common school.
> E. Six years' common school.
> F. None.
>
> *Experience*
>
> A. Ten years.
> B. Five years.
> C. Three years.
> D. Two years.
> E. One year.
> F. None.
>
> *Judgment*
>
> A. Errors may cause loss of life.
> B. Errors may cause personal injury.
> C. Errors may cause money loss.
> D. Errors may cause confusion—inter-departmental.
> E. Errors may cause inconvenience—intra-departmental.
> F. None.
>
> *Accuracy*
>
> A. Errors may cause loss of life.
> B. Errors may cause personal injury.
> C. Errors may cause money loss.
> D. Errors may cause confusion—inter-departmental.
> E. Errors may cause inconvenience—intra-departmental.

Supervision

A. Supervision over one hundred.
B. Supervision over fifty.
C. Supervision over twenty-five.
D. Supervision over ten.
E. Supervision over five.
F. None.

Physical qualities

A. Superlative—e.g., Great strength (continuous heavy lifting) exceptional eyesight (draftsman, instrument maker, etc.).

B. Superior—e.g., Unusual strength (occasional heavy lifting, etc.) good eyesight (machinist, etc.).

C. Better than average—e.g., Better than average strength (carpenter, plumber); better than average eyesight (typist, mimeograph operator, fabric worker, etc.).

D. Below average—Average strength not needed (watchman, messenger, engineers)—average vision not needed (doper, dry kiln operator, firefighter, etc.).

E. Slight—Little strength required (office worker, watchman, draftsman), poor vision acceptable (janitor, laborer).

Working conditions

A. Imminent risk of life—e.g., Experimental parachute jumper.

B. Dangerous—e.g., Flying work.

C. Hazardous—e.g., Aviation mechanic, ground man, etc.

D. Unhealthy or extremely unpleasant—e.g., Doper, propeller test.

E. Factory or shop.

F. Office.

Obviously these seven factors cannot be considered alone especially in wage study work. There are other factors demanding consideration, such as market conditions, labor supply, cost of living, funds available, etc. Yet we find that these latter factors rarely escape attention, whereas such factors inherent in each occupation as the seven we have named frequently are overlooked entirely or are summarized so briefly as to reduce wage determination to a matter of guesswork rather than of judgment.

This is the part of the Occupational Description which has direct relation to the Salary Control Chart. But before proceeding to follow up that relationship, let us join the ranks of the interviewers again and consider their procedure in getting the facts needed in writing up the Occupational Descriptions. We have the point at which the work was begun. We have seen the finished product. Now let us follow the adventures of the men who did the work.

GETTING THE FACTS

We reproduce here the four pages of the work sheet, or Data Sheet, as it was called. One such sheet was filled out for each occupation on the McCook Field list; the name and numerical symbol were entered on the first line of the first page; on the fourth page, section P, were listed the names of the employees classified in that occupation.

In this brief article it is impossible to give in detail the full purpose of each space and line. To the experienced reader most of them will be apparent. It must be realized, however, that each interviewer was faced with the difficult task of defining an unknown thing; creating a true classification out of a mass of facts; choosing those which were pertinent and reporting those which were apparently pertinent to another classification. The Data Sheet was the rough record of those facts pertinent to the occupation itself needed in the writing of the Occupational Description.

Generally speaking, Section A was provided for the entries having to do with identifying and naming the

OCCUPATIONAL DATA SHEET—McCOOK FIELD

[1]**Designation** ..... [2]Symbol.....

[3]Civil Service Classification.....

[4]Other titles in use.....

[5]Occurring in Sections .....

[6]Sub-occupations .....

[7]Occuring in Sections.....

A Branches .....

Units .....

[8]Addenda .....

[9]**Statement of (a) duties, (b) responsibilities, (c) tools and equipment, (d) working conditions:**

B .....

FIG. 2a

MINIMUM REQUIREMENTS.

[15]**Physical Requirements**

C [11]Strength..... [12]Weight..... [13]Height..... [14]Eyesight.....

[15]Other qualities .....

[16]Reason .....

D

[17]**Education** .....
Post-Graduate Work: V IV III II I | College: G IV III II I | High School: G IV III II I | Common School: 8 7 6 5 4 3 None

[18]Degree ..... [19]Subjects required.....

[20]Reason .....

.....

[21]Equivalents .....

E

[22]**Special Training** .....
V IV III II 18 I 6 3 1 None

[23]Subjects required.....

[24]Reason .....

[25]Equivalents .....

F

[26]**Experience** .....
V IV III II 18 I 6 3 1 None

[27]Nature .....

[28]Reason .....

[29]Equivalents .....

G

[30]**Technical Skill** .....
Expert | Journeyman | Apprentice | None

[31]Trade .....

[32]Reason .....

[33]Equivalents .....

H

Personal Qualities: [34]S M E.....[35]M F E.....[36]Age.....to.....[37]Race..... [38]Citizenship.....

[39]**Judgment** .....
Unfailing: Errors cause personal danger | Good: Errors cause money loss | Average: Errors cause confusion | None

[40]Kind and reason.....

[41]**Creative Ability** .....
Highest Inventiveness | High Originality | Average Initiative | None

[42]Kind and reason.....

[43]**Supervisory Ability** .....
1000 | 500 | 100 | 25 | 10 | 2 | None

[44]Characteristics of force.....

[45] .....

[46] .....

[47] .....

FIG. 2b

ADDITIONAL QUALIFICATIONS DESIRED.

I

[51]Physical qualities.....

[52]Reason .....

J

Education[53] .....
Post-Graduate Work: V IV III II I | College: G IV III II I | High School: G IV III II I | Common School: 8 7 6 5 4 3 None

[55]Additional subjects desired.....

[56]Reason .....

K

Special Training[57].....
VI V IV III II 1B I 6 3 1 None

[58]Additional subjects desired.....

[59]Reason .....

L

Experience[60] .....
V IV III II 1B I 6 3 1 None

[61]Nature .....

[62]Reason .....

M

Technical Skill[63]. .....
Expert — Journeyman — Apprentice — None

[64]Trade .....

[65]Reason .....

N

Personal Qualities.....[66]Age.....to.....[69]Race..... [70]Citizenship.....

Judgment[71] .....
Unfailing — Errors cause personal danger | Good — Errors cause money loss | Average — Errors cause confusion | None

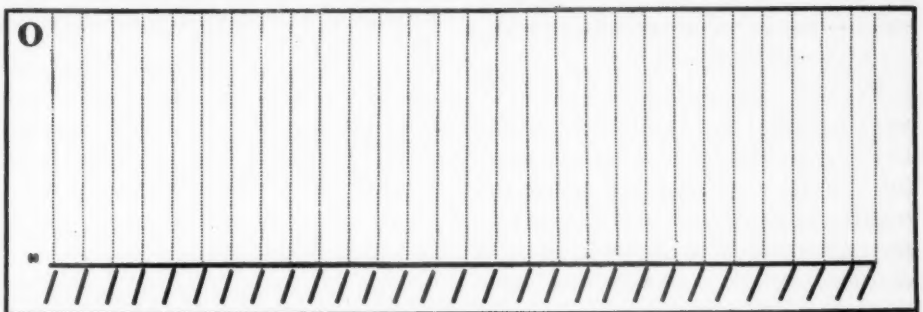
[73]Kind and reason.....

Creative Ability[74].....
Highest Inventiveness | High Originality | Average Initiative | None

[74]Kind and reason.....

[75]Other qualities.....

FIG. 2c



P

	NAME	Sec., Br., and Unit.	Sub. Occupation	Age	Service	On Work	Rating	Salary
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

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FIG. 2d

occupation. Section B was provided for a statement of duties, responsibilities, tools and equipment used and working conditions.

Pages 2 and 3, Sections C to N, were provided for the entries having to do with the minimum requirements for the position and the additional qualifications desired. It will be observed that the form has been arranged so that the interviewer can most easily consider each factor separately, both with respect to the degree in which it is *essential* and to the degree in which it is further *desirable*. For this purpose, for instance, physical factors were considered under C and again under I, Education was considered under D and under J, Experience was considered under F and under L, etc. Facts were recorded both by actual entries and by check marks.

It was required that the interviewer in stating or indicating a fact should substantiate it by the *reason* for it.

The report accompanying the Occupational Descriptions included a set of instructions for the construction of new Occupational Descriptions and for the revision of those already in hand. From this we quote as follows:

> In this connection, it may as well be said here as anywhere that every fact given on these two pages should be substantiated by a good *reason*. If perfect color sense is required, the interviewer should state the reason briefly (but adequately) in (16). If it is desired that the employee wear no glasses, the reason should be entered in (52). The purpose for giving the reason in each case is two-fold; in the first place, it ensures that the requirement stated is a genuine one, not a fictitious one, and in the second place, it clarifies the meaning of the requirement. (If later on the page, for instance, the interviewer specified *judgment* as a quality required, our interpretation of the meaning of judgment will be made much more accurate if we know that it is that kind of judgment which will permit the employee to diagnose motor trouble; that is an entirely different kind of judgment from the judgment which will enable the employee to purchase supplies.)

The procedure of the interviewers comprised the following steps:

First, secure the Data Sheet for the position about to be analyzed.

Second, interview the employees named on the fourth page and secure from them the information needed to satisfy the demands of pages one, two and three. In certain occupations where the work was highly standardized, it was not necessary to interview ALL of the employees.

Third, bring this data to the office and prepare a rough draft of the Occupational Descriptions.

Fourth, have the rough draft typed by the typist detailed to that work.

It is needless to say, of course, that many conferences with the consultants took place during the performance of these first steps. Knotty and difficult points frequently arose. Apparent contradictions were encountered. Especially at first, constant help and guidance were required. Yet in its essence, these three steps sufficed to place on file (in a folder numbered according to the code and filed accordingly) the Data Sheet, miscellaneous memoranda pertinent to the occupation, the handwritten rough draft and the typed initial draft.

Whenever apparent inefficiencies in the work of the Field were noted for improvement in procedure, the interviewer wrote memoranda to the con-

sultants who turned them over to the Planning Section of the Field for further investigation and action. Similar memoranda had reference to employees who were apparently improperly classified; these memoranda were filed in the folders for those occupations to which such individuals apparently belonged.

The next step was the editing of the Occupational Description by the consultants. In this stage frequent questions arose requiring return visits on the part of the interviewers to get the needed facts or to clear up the points on which uncertainty seemed to exist. Not infrequently several redraftings were necessary. When the Occupational Description was in form satisfactory to the consultants and the interviewer, it was submitted through the interviewer to the executive in charge of the work who either signed it, indicating his approval, or made criticisms involving further consideration on the part of the consultants. When such criticisms were offered, they were weighed carefully and, if they were well-founded, were written into the Occupational Description.

When the Occupational Description was passed by the executive in charge of the work, it was submitted to the representative of the Civil Service Commission who either approved it or similarly made comments from the point of view of the Civil Service. If necessary, it was then again redrafted. It was then submitted to the representative of the Air Service. This official similarly entered his approval or offered criticisms from the point of view of the Air Service; in the latter case his criticisms were considered and if deemed well-substantiated in view of all the facts and in view of possible conflicting opinions, the Occupational Descriptions were again redrafted. When this point was reached, the Occupational Description was regarded as completed.

The difficulty of achieving a unanimous agreement on the form and content of all the Occupational Descriptions was frankly recognized. At times when opinions were conflicting, they were stoutly defended in discussion; yet usually they were harmonized as most of the executives were openminded. Nevertheless at times no sincere reconciliation was possible. In these few instances, the consultants assumed the rôle of arbiters and handed down the ruling as to which opinion should prevail.

THE OFFICE PROCEDURE

It will be readily appreciated that the task of coördinating the efforts of a staff of ten interviewers who were engaged simultaneously in investigation, in the original write-up of Occupational Descriptions, in submitting them for approval to the various executives, in redrafting them, etc., was one presenting considerable difficulties. It was necessary to know at any time the status of the Occupational Description for Associate Metallurgist 108 and of that for any one of some three hundred others. A very satisfactory method of doing this was developed. A capable office assistant was made Traffic Manager. He maintained the files of folders, referred to above, one for each occupa-

tion, containing all the papers and data having reference to that occupation; these folders were numbered according to the occupational code.

This file was divided into eight compartments: A, those not yet begun; B, first draft completed; C, typed; D, ready for editing; E, edited and ready to be submitted to the executive for approval or comment; F, revised as needed and ready to be submitted to the representative of the Civil Service Commission; G, revised as needed and ready to be submitted to the representative of the Air Service; H, revised as needed and ready for final typing; I, completed.

As the Occupational Descriptions progressed through the trials and tribulations of being written and completed, so did they progress through this file from front to back. And as they progressed from one compartment to the next, the Traffic Manager recorded that step forward by entering an X in the Progress Chart which was kept on the consultants' desk, and which had a column corresponding to each compartment. This chart, consequently, revealed at a glance the actual status of the work at any time.

A page from the Progress Chart is reproduced here. At first the area covered by the X's seemed obstinately to refuse to expand eastward across the page, but gradually the dark area grew until seven weeks after the work was inaugurated the chart bore the appearance it shows here. Similarly the front compartments in the file seemed to have great hesitancy to yield up their contents to the back compartments.

Incidentally this system of file compartments served a worthwhile purpose which had not been anticipated. It pointed out where the "neck of the bottle" was. If Section D contained more than its share of folders, it was a sign that the consultant was falling behind his schedule in editing. If Section F was full, the representative of the Civil Service Commission knew that he was blocking progress. It became a matter of personal pride to keep in a state of honest emptiness the compartment designed to hold the folders waiting for one's attention.

Many interesting facts were brought in by the interviewers. Already reference has been made to the identifying of the employees at the Field who were wrongly classified. When such a person was found, inquiry was made to ascertain enough facts about his work to make it possible to assign him tentatively to another occupation and his name was added to those in that occupation, to be interviewed when that occupation came to be studied. Again, it was frequently found that certain occupations existed in name only, that the employees really belonged elsewhere. In these cases, the occcupation was eliminated and the word "eliminated" written on the Progress Chart as shown in the illustration.

At last the day arrived when the X's had marched across the Progress Chart and preempted all the columns. Then the names on the Occupational Descriptions were checked against the complete list of employees at the Field to find out who had been omitted. This procedure yielded the names of thirty-five individuals who

	SYMBOL	DESIGNATION	B First Draft Made	C Ret. by Stenc.	D Ret. by Interv.	E Ready for Form.	F Ret. from Form.	G Refrem. Ready for Cl.	H OK'd by OS Rdy for A.S.	I OK'd by A.S.		
	142	Special Agent	Eliminated							-		
	143	Statistician	Eliminated							-		
	144	Steamfitters	X	X	X	X	X	X		X		
	145	Mobile Mech. Repairman	X	X	X	X	X	X	X	X		
	146	Storekeeper	X	X	X	X	X	X	X	X		
	147	Sup't of Aero Const.	X	X	X	X	X	X	X	X		
	148	Asst. Factory Supt.	X	X	X	X	X	X	X	X		
	149	Patent Attorney	X	X	X	X	X	X	X	X		
	150	Test Pilot	X	X	X	X	X	X	X	X		
	151	Asso. Textile Technolog.	X	X	X	X	X	X	X	X		
	152	Tool Crib Attendant	X	X	X	X	X	X	X	X		
	153	Traffic Clerk	X	X	X	X	Baruch					
	154	Traffic Manager	X	X	X	X	X	X	X	X		
	155	Registered Nurse	X	X	X	X	X	X	X	X		
	156	Tube Benders	X	Eliminated						-		
	157	Compositor	X	X	X	X	X	X	X	X		
	158	Office Appliance Rp'rman	X	X	X	X	X	X	X	X		
	159	Upholsterers	X	X	X	X	X	X	X	X		
	160	Varnishers	X	X	X	X	X	X	Eliminated			
	161	Watchmakers	X	X	X	X	X	X	X	X		
	162	Welders & Brazers	X	X	X	X	X	X	X	X		
	163	Wood Working Mech. Oper.	X	X	X	X	X	X	X	X		
	164	Foreman - Aero.Inst.Maker	X	X	X	X	X	X	X	X		
	165	Airplane Mech. Helper	X	X	X	X	X	X	X	X		
	166	~~Technical Asst.~~										
	167	Cost Investigator	X	X	X	X	X	X	Baruch			
	168	Foreman - Carpenter	X	X	X	X	X	X	X	X		
	169	Chief Clerk(Requirements)	X	X	X	X	X	X	Baruch		Eliminated	
	170	Tractor Driver	X	X	X	X	X	X	X	X		
	171	Senior Cost Accountant	X	X	X	X	X	X	Baruch			
	172	Junior Cost Accountant	X	X	X	X	X	Baruch	X	X		
	173	Laboratorian(Physics)	X	X	X	X	X	X	X	X		
	174	Blue-Print Paper Coater	X	X	X	X	X	X	X	X		
	175	Chief Aero.Draftsman	X	X	X	X	X	X	X	X		
	176	Asso. Aero. Draftsman	X	X	X	X	X	X	X	X		
	177	Asst. Aero. Draftsman	X	X	X	X	X	X	X	X		
	178	Junior Aero. Draftsman	X	X	X	X	X	X	X	X		
	179	Prin. Acct. Clerk	X	X	X	X	X	X	Eliminated			
	180	Senior Clerk (Accounting)	X	X	X	X	X	Baruch				
	181	Junior Accounting Clerk	X	X	X	X	X	X		X	Baruch	
	182	Head Shipping Clerk	X	X	X	X	Baruch					
	183	Translator	X	X	X	X	X	X	X	Consider as B		
	184	Chief of Stores	X	X	X	X	X	X	X			
	185	Specifications Clerk	X	X	Eliminated							
	186	Jr. Production Clerk	X	X	X	X	X	Baruch				
	187	Millwrights Helper	X	X	X	X	X	X	X	X		
	188	Asst. Aero Chemist(Apps)	X	X	X	X	X	X	X	X		

FIG. 3

became known as "Lost Souls." Immediately the interviewers started out to study the work of these persons and to prepare Data Sheets and Occupational Descriptions for them. This resulted in the creation of twenty-four new classifications. In all 237 separate occupations were set up. The Occupational Descriptions for them were arranged in numerical order according to the code symbols.

THE PROMOTIONAL CHART

As stated in the beginning of this article, a very real need existed for a Promotional Chart and a promotional policy. To this end a procedure was adopted which resulted in the construction of a promotional chart for the Field tracing the avenues of promotion from the lowest positions to those of greater importance. Each Occupational Description showed the lines of promotion to and from that occupation; there was now need for the construction of a promotional chart to give a bird's-eye view of these many and varied avenues of advancement.

A large sheet of paper, some three feet wide and twelve feet long, was laid on a table sufficiently large. Along one long edge (regarded as the top of the chart) were written rough group titles, thus dividing the sheet into areas: Clerical, Mechanical, Engineering, Flying, Technical, Administrative, Labor, Printing, etc. The Purpose of these areas was to bring together in the same parts of the sheet those occupations which had a family resemblance, such as file clerk, typist, stenographer, etc., or common laborer, classified laborer, truck driver, etc.

Then as each Occupational Description was completed, a free-hand circle, an inch or two in diameter, was pencilled under the appropriate caption and the name and code number of the occupation written in the circle. If the occupation was obviously of lesser importance, the circle was drawn near the bottom of the chart; if it was a high and mighty occupation, the circle was drawn near the top. Bourgeois, middle-class occupations were shown by circles in between.

The next step was that of drawing phantom circles above and below (but in the proper area) for the occupations named on the Occupational Description as those *to* which and *from* which the occupation itself flows. Lines connected the real circle with these phantom circles and on these lines, immediately adjacent to the real circle, were drawn arrow heads pointing in the direction of promotion. These arrow heads signified that the Occupational Description represented by the real circle named these positions represented by the phantom circles as the positions from which and to which promotion naturally took place.

As fast as the Occupational Descriptions were completed, they were entered thus on the rough chart by real circles and the positions leading to them and from them by phantom circles. When a phantom circle already existed on the chart for a position for which a real circle was thus about to be drawn, the phantom circle was made into a real circle, and the arrow heads drawn on the line immediately adjacent to the *new real circle*. Thus it was quickly perceived when one Occupational Descrip-

tion "pointed" ahead to a higher position but that higher position failed to return the compliment; in this case only one arrow head appeared on the connecting line. In this case the Occupational Descriptions were not "reciprocal." The interviewers were then called into consultation, the true relationship established, the reciprocal entries made on the Occupational Descriptions and the connecting line erased (if there was no promotional relationship) or another arrow head drawn on it. The presence of two arrowheads was required.

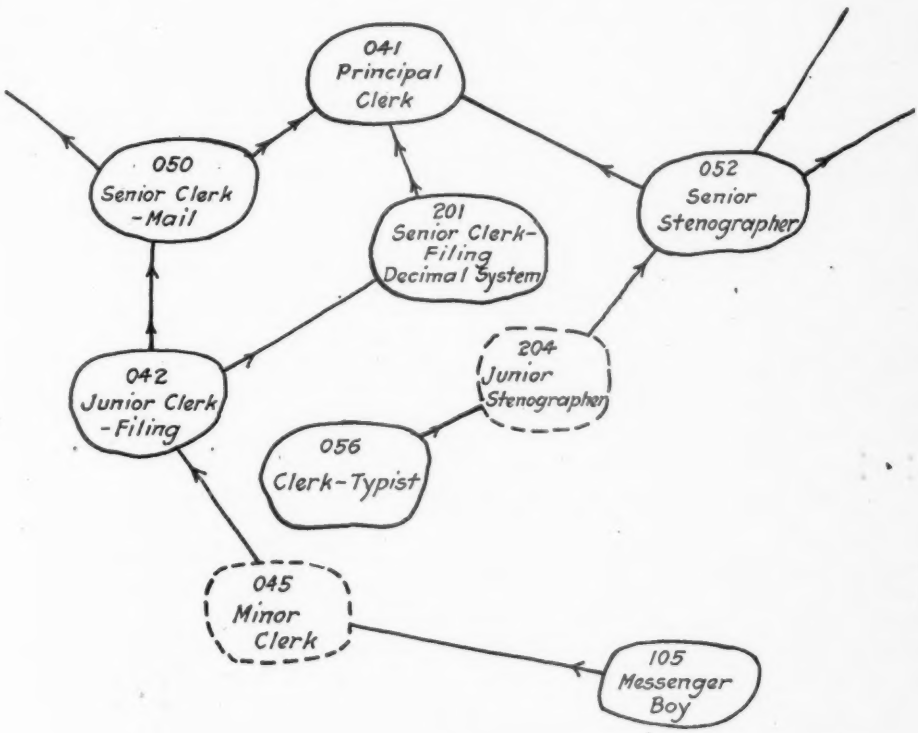


FIG. 4

One of the interviewers who had shown aptitude at the work was put in charge of the development of this chart. He did more than accept the facts as they were given on the Occupational Descriptions; he studied the duties to be performed and the requirements, and traced out additional avenues of promotion which had escaped the interviewers owing to the fact that they had not had the opportunity to visualize all the positions at the Field together. This required constant visits to the departments and frequent consultations with the executives and employees. The result was an unusually complete portrayal of the promotional possibilities at the Field.

When this work was completed, a draftsman was called in and the

preparation of the final chart planned. It is reproduced as figure 5.

From the consultants' statement to McCook Field on the Promotional Chart, the following paragraphs are quoted:

> This chart shows the lines of advancement from the lowest positions in the organization up through the intermediate grades to the higher positions. It permits a bird's-eye view of the information which is entered individually by Occupation on the Occupational Descriptions. It shows the positions which seem to offer unusual opportunity to get ahead. It shows those positions advancement from which seems improbable, except of course, through study and self-preparation of a kind and degree over and beyond that yielded in the performance of the duties of the position. Naturally no consideration has been given in these statements of the lines of promotion to those channels which may be open to an employee by virtue of special preparation or unusual ability. In such a sense any position at the Field is a logical promotion for any employee.
>
> But the use of the chart in the Employment Department is only a part of its function. As stated above, it should be made a source of constant incentive to the employees throughout the Field in revealing to them the avenues of advancement opening ahead of them which they may expect to travel *provided they make good on their own jobs and show evidence of initiative and ability.*
>
> Obviously there is a close tie-up between the prosecution of such a promotional policy as we outline here and the successful maintenance of a group of understudies qualified to step into the positions of their superiors should it become necessary to replace such superiors.
>
> As stated this chart shows a number of positions which seem rich in opportunities for advancement, others which are not so well endowed and others which offer no opportunities for advancement whatever. The latter are the positions which first call for study and analysis. In industrial practice it has been found possible to resolve these "blind-alley jobs" into jobs leading to other and better jobs by careful planning. While such industrial practice may not be a sure criterion for such an organization as the Engineering Division, it is our belief that similar study and analysis of these positions will make it possible to break down the walls which now apparently prevent the incumbents in these positions from advancing.

It was outlined to the administration at the Field that the purposes of the promotional chart are three-fold:

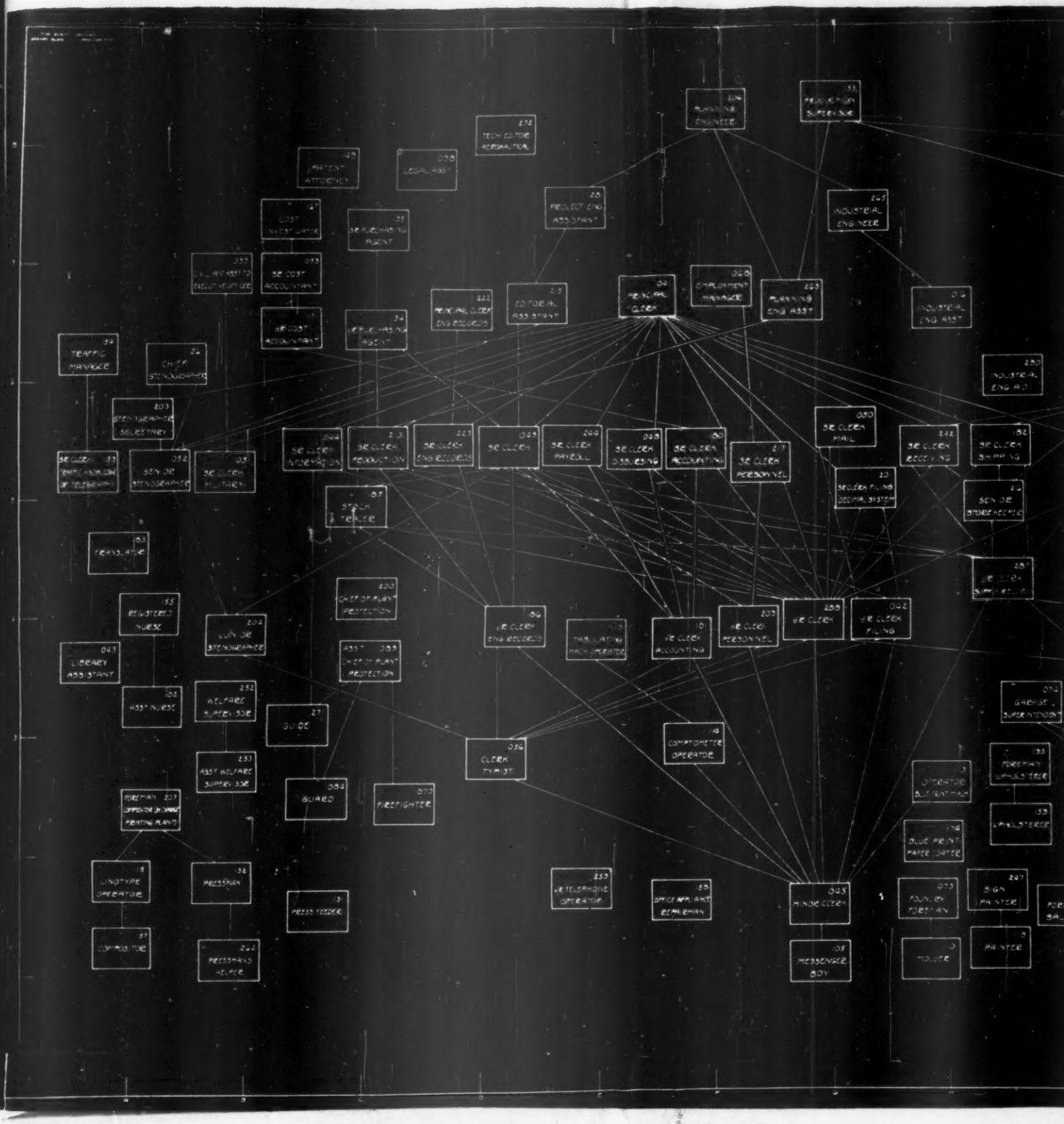
First, to create incentive by display; to impress upon the employees at the Field that opportunity exists in the organization; to demonstrate that the administration has given definite thought to the development of channels of advancement.

Second, to offer the opportunity for intelligent conference with ambitious employees; to assist them in qualifying themselves for higher positions; to aid them in getting out of blind-alley jobs.

Third, to indicate those positions throughout the organization which offer no opportunity for advancement; to point out where constructive effort to eliminate blind-alley jobs can best be directed; to guide in investigation and planning.

THE SALARY CONTROL CHARTS

The setting of salary ranges for positions of varying nature and importance is recognized as a problem calling for the best judgment that can be brought to bear upon it. Too frequently decisions as to salary ranges are based upon casual knowledge or upon guesswork. The quality of judgment brought to bear upon it



Accountant Cost Jr. 171-C-6
Accountant Cost Sr. 059-C-6
Aero Computer 003-0-4
Aero Eng. (Airplane Design) 218-N-8
Aero Eng. (Lighter-Than-Air) 238-M-8
Aero Eng. (Propellers) 227-N-8
Aero Eng. (Wind Tunnel) 221-0-8
Aero Instrument Maker-093-R-3
Aircraft Fabric Worker-012-N-3
Aircraft Fire Prevention Expert 241-U-3
Airplane Assembler 014-L-4
Airplane Eng. Representative 251-P-7
Airplane Inspector 015-L-6
Airplane Liaison Man. 019-K-6
Airplane Maint. Asst. 289-J-7
Airplane Mechanic 020-L-4
Airplane Mech. Helper 165-L-3
Airplane Sub Assembler-280-L-3
Airplane Test Pilot 150-J-6
Airplane Wood Worker 024-J-3
Apprentice Aero Instrument Maker 281-S-2
Apprentice Draftsman 062-P-4
Architectural Eng. 023-T-5
Armorer Expert 022-R-4
Associate Aero Draftsman 176-Q-6
Associate Aero Eng. (Airplane Design) 219-N-8
Associate Aero Eng. (Propellers) 229-N-8
Associate Aero Eng. (Research) 291-N-7
Associate Electrical Eng. 273-M-7
Associate Instrument Eng. 268-R-5
Associate Materials Testing Eng. 008-S-7
Associate Mech. Eng. (Specification) 204-S-7
Associate Mech. Eng. (Aircraft Arm) 245-R-7
Associate Mech. Eng. (Aircraft Power Plant) 228-Q-7
Associate Mech. Eng. (Gas Mach.) 083-R-7
Associate Metallurgist-106-S-8
Associate Physicist (Aerial Photo.) 125-S-6
Associate Physicist (Aerodynamics) 126-T-7
Associate Rubber Technologist 025-U-7
Associate Struc. Eng. (Aircraft) 010-O-8
Associate Textile Technologist 151-U-7
Associate Wood Technologist 256-T-6
Asst. Aerial Navy Eng. 001-O-6
Asst. Aerial Photographic Eng. 249-S-6
Asst. Aero Draftsman 177-Q-5
Asst. Aero Chemist (Dopes) 188-U-6
Asst. Aero Chemist (Fuels & Oils) 190-U-7
Asst. Aero Chemist (Metals) 189-U-6
Asst. Aero Chemist (Varnishes & Paints) 191-T-7
Asst. Aero Eng. (Airplane Design) 220-N-6
Asst. Aero Eng. (Lighter-Than-Aircraft) 239-Q-6
Asst. Architec. Draftsman 021-S-4
Asst. Chief of Plant Protection 089-C-4
Asst. Electrical Eng. (Aircraft) 230-M-6
Asst. Factory Supt. 148-M-6
Asst. Foreman Machinist 281-Q-3
Asst. Materials Testing Eng. 009-R-6]
Asst. Mech. Eng. 240-P-6
Asst. Mech. Eng. (Aircraft Arm) 233-Q-6
Asst. Mech. Eng. (Aircraft Power Plant) 231-R-6
Asst. Nurse 102-B-3
Asst. Radio Eng. 018-N-5
Asst. Struc. Eng. (Aircraft) 011-O-6
Asst. Welfare Supervisor 253-B-3
Asst. Wood Technologist 257-T-6
Attorney Patent 149-C-8
Auto Mechanic 028-K-3
Aviation Eng. Inspector 088-M-4
Aviation Eng. Mech. 029-M-4
Aviation Eng. Mech. Helper 255-N-2
Blacksmith General 033-K-2
Blacksmiths Helper 141-K-1
Blue Print Paper Coater 174-H-2
Carpenter 035-O-2
Carpenter's Helper 036-N-1
Cartographic Draftsman 063-S-5
Chauffeur 038-K-2
Checker 040-J-4
Chemist Aero Asst. (Dopes) 188-U-6
Chemist Aero Asst. (Fuels & Oils)190-U-7
Chemist Aero Asst. (Metals) 189-U-6
Chemist Aero Asst. (Varnishes & Paints) 191-T-7
Chemist Aero Jr. (Metals) 192-U-5
Chief Aero Draftsman 175-R-8
Chief Inspector of Airplanes & Airplane Eng 211-K-7
Chief of Plant Protection 200-C-4
Chief Stenographer 261-B-6
Chief Storekeeper 184-I-6
Civilian Asst. To Executive Officer 039-B-7
Clerk Accounting Jr. 181-F-4
Clerk Accounting Sr. 180-F-5
Clerk Disbursing Sr. 048-F-5
Clerk Eng. Records Jr. 186-D-4
Clerk Eng. Records Principal 222-D-6
Clerk Eng. Records Sr 223-D-5
Clerk Filing Decimal System Sr 201-G-5
Clerk Filing Jr. 042-H-4
Clerk Information Sr. 044-C-5
Clerk Jr 288-G-4
Clerk Mail Sr 050-G-5
Clerk Military Sr 051-B-5
Clerk Minor 045-G-1
Clerk Payroll Sr 244-E-5
Clerk Personnel Jr. 209-G-4
Clerk Personnel Sr 217-G-5
Clerk Principal 041-F-7
Clerk Production Sr 210-C-5
Clerk Receiving Sr 242-H-5
Clerk Shipping Sr 182-1-5
Clerk Sr 049-D-5
Clerk Supply Records Jr 287-I-4
Clerk Supply Records Sr 243-J-5
Clerk Traffic Sr Knowledge of Telegraphy 153-A-5
Clerk Typist 056-D-3
Compositor 157-A-2
Comptometer Operator 114-F-3
Consulting Eng. 057-P-8
Cost Investigator 167-C-7
Division Supt. of Airways-202-J-7
Draftsman Aero Associate 176-Q-6
Draftsman Aero Asst. 177-Q-5
Draftsman Aero Chief 175-R-8
Draftsman Aero Jr 178-P-4
Draftsman Apprentice 062-P-4
Draftsman Architec. Asst. 021-S-4
Draftsman Architec. Jr 274-S-3
Draftsman Cartographic 063-S-5
Draftsman Illustrative 087-T-5
Dry Kiln Operator 064-M-2
Editor Aeronautical Tech. 272-D-8
Editorial Assistant 215-E-7
Electricians 065-N-2
Electricians Helper 066-N-2
Employment Manager 068-E-7
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Eng. Aerial Photographic Asst. 249-S-6
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Eng. Aero Associate (Propellers) 229-N-8
Eng. Aero Associate (Research) 291-N-7
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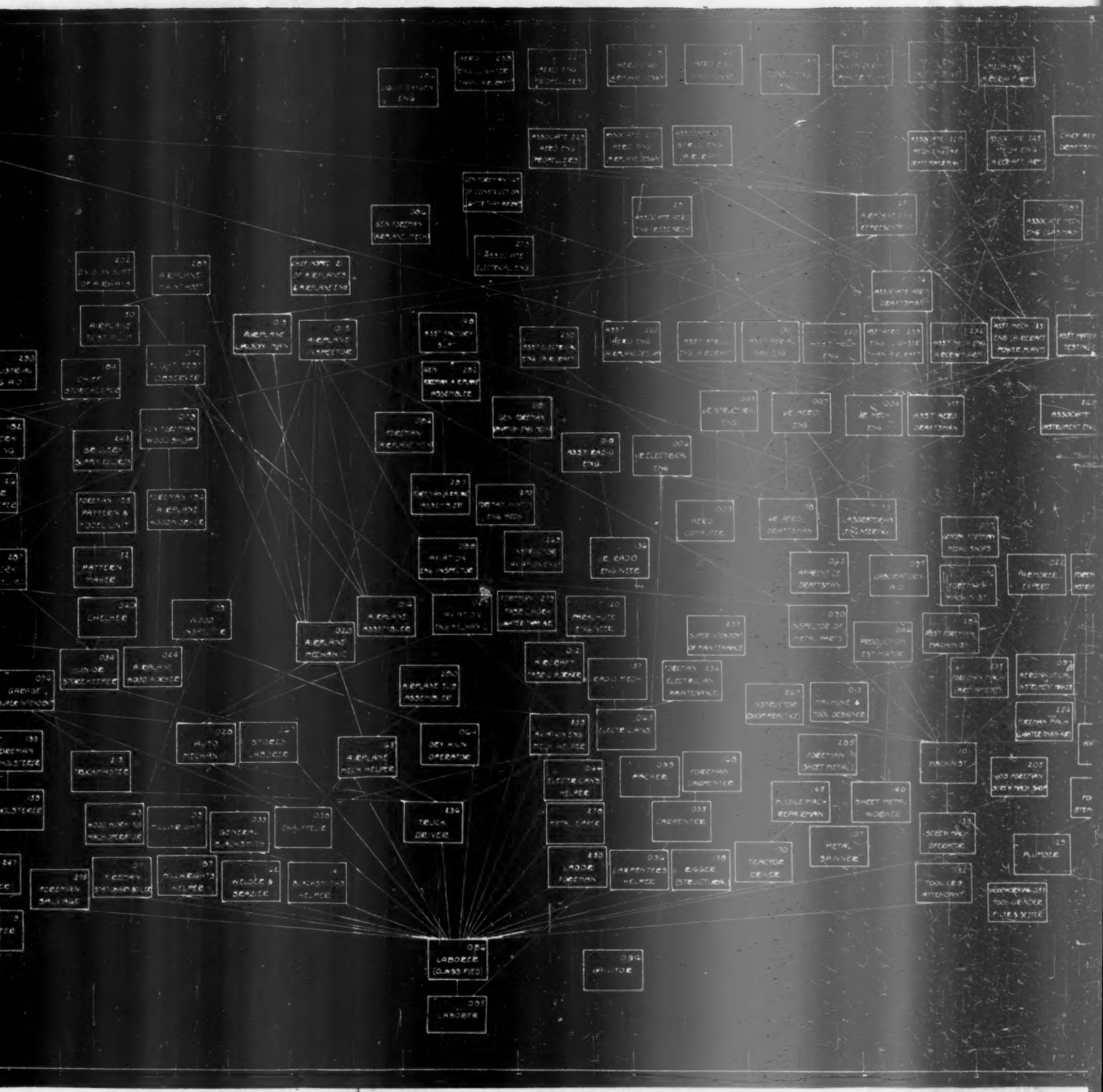
Eng. Aero Asst. (Lighter-Than-Aircraft) 239-Q-6
Eng. Aero (Airplane Design) 218-N-8
Eng. Aero Jr 007-P-5
Eng. Aero (Lighter-Than-Aircraft) 238-M-8
Eng. Aero (Propellers) 227-N-8
Eng. Aero (Wind Tunnel) 221-O-8
Eng. Architectural 023-T-5
Eng. Consulting 057-P-8
Eng. Electrical Associate 273-M-7
Eng. Electrical Asst (Aircraft) 230-M-6
Eng. Electrical Jr. 006-N-5
Eng. Industrial 265-G-7
Eng. Industrial Aid 290-I-6
Eng. Industrial Asst. 016-H-6
Eng. Instrument Associate 268-R-5
Eng. Liquid Oxygen 296-L-8
Eng. Materials Testi
Eng. Materials Testi
Eng. Materials Testi
Eng. Mech. (Aircraft
Eng. Mech. (Aircraft
Eng. Mech. Associate
Eng. Mech. Associate
Eng. Mech. Associate
Eng. Mech. Associate
Eng. Mech. Assist. 24
Eng. Mech. Asst. (Ai
Eng. Mech. Asst. (Ai
Eng. Mech. (Automo
Eng. Mech. Jr 004-P-
Eng. Parachute 120-
Eng. Planning 206-F-
Eng. Planning Asst
Eng. Project Asst 12
Eng. Radio Asst 018-
Eng. Radio Jr 136-N-
Eng. Struc. Associate
Eng. Struc. Asst. (A
Eng. Structural Jr 0
Fire. Prevention Eq
Firefighter 070-D-2
Fireman Stationary
Flight Test Observer
Foreman Aero Instru
Foreman Airplane A
Foreman—Airplane
Foreman—Aviation
Foreman—Carpenter
Foreman—Composit
207-B-2
Foreman—Construct
M-7
Foreman—Electricia
Foreman—Fabric W
Foreman—Gen. (Air
Foreman—Gen. (Air
Foreman—(Aviation
Foreman—Labor 250
Foreman—Machinist
Foreman—Mach. (A
Foreman—Mach. As
Foreman—Mach. (L
Foreman—Metal Sh
Foreman—Pattern
Foreman—Salvage
Foreman—Screw Ma
Foreman—Sheet Me
Foreman—Steamfitt



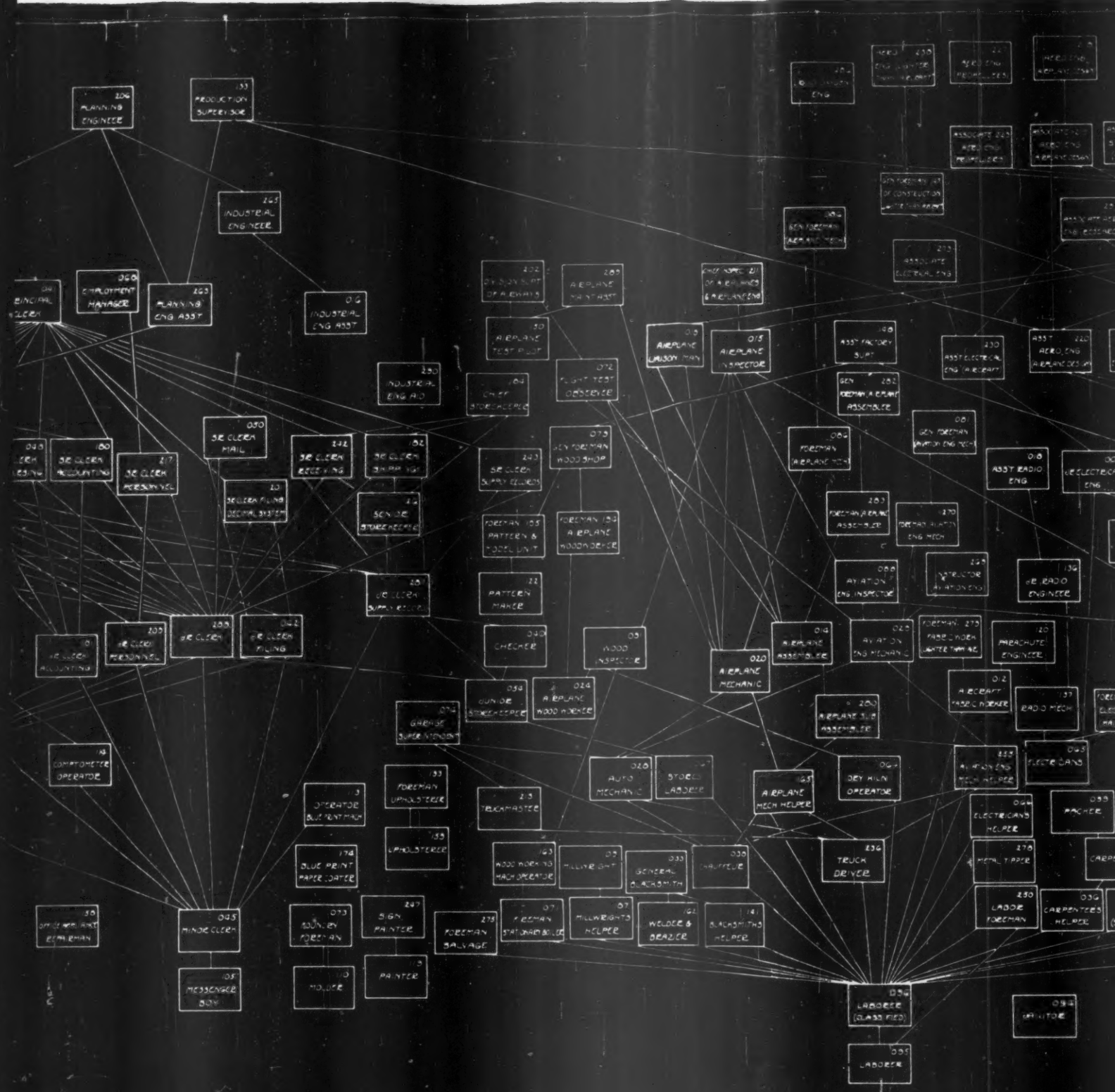
Trials Testing 258-S-8
Trials Testing Associate 008-S-7
Trials Testing Asst 009-R-6
. (Aircraft Arm) 236-Q-8
. (Aircraft-Power-Plant) 225-P-8
. Associate (Specification) 264-S-7
. Associate (Aircraft-Arm) 245-R-7
. Associate (Aircraft-Power-Plant) 228-Q-7
. Associate (Gas Mach.) 083-R-7
. Assist. 240-P-6
. Asst. (Aircraft Arm) 232-Q-6
. Asst. (Aircraft Power Plant) 231-R-6
. (Automotive) 237-Q-6
. Jr 004-P-5
chute 120-N-3
ning 206-F-8
ning Asst 263-G-6
ect Asst 128-E-7
o Asst 018-N-5
o Jr 136-N-4
. Associate (Aircraft) 010-O-8
. Asst. (Aircraft) 011-O-6
ctural Jr 005-O-5
ention Expert Aircraft 241-U-3
070-D-2
tationary Boiler 071-J-1
t Observer 072-J-6
Aero Instrument Maker 164-R-4
Airplane Assembler 283-M-5
-Airplane Woodworker 194-J-5
-Aviation Eng. Mech. 270-M-5
-Carpenter 168-O-2
-Compositor (In Charge Of Printing Plant) 2
-Construction Gen. (Lighter-Than-Aircraft) 147-
-Electricians (Maintenance) 234-O-3
-Fabric Worker (Lighter-Than-Air) 279-M-4
-Gen. (Airplane Assembler) 282-M-6
-Gen. (Airplane Mech.) 086-L-5
-(Aviation Eng Mech.) 081-M-5
-Labor 250-N-1
-Machinist 076-Q-4
-Mach. (Armament) 235-Q-3
-Mach. Asst. 284-Q-3
-Mach. (Lighter-Than-Air) 224-R-3
-Metal Shops Gen 077-Q-4
-Pattern & Model Unit 195-J-5
-Salvage 275-I-1
-Screw Mach. Shop Job 205-R-2
-Sheet Metal 285-P-2
-Steamfitter 078-R-2

Foreman—Upholsterer 193-I-3
Foreman—Wood Shop Gen. 079-J-5
Foundry Foreman 073-H-1
Garage—Superintendent 074-I-3
General Blacksmith 033-K-2
Gen. Foreman (Airplane Assembler) 282-M-6
Gen. Foreman (Airplane Mech.) 086-L-5
Gen. Foreman (Aviation Eng. Mech.) 081-M-5
Gen. Foreman Metal Shops 077-Q-4
Gen. Foreman of Construction (Lighter-Than-Aircraft) 147-M-7
Gen. Foreman Wood Shop 079-J-5
Guard-084-C-3
Guide 271-C-3
Gyroscope Maker 085-S-3
Illustrative Draftsman 087-T-5
Industrial Engineer 265-G-7
Industrial Eng. Aid 200-I-6
Industrial Eng. Asst. 016-H-6
Inspector Airplane 015-L-6
Inspector Airplane & Airplane Eng. Chief 211-K-7
Inspector Aviation Eng. 088-M-4
Inspector of Metal Parts 090-P-3
Inspector Wood 091-J-4
Instructor (Aviation Eng.) 292-M-4
Instructor Higher Mathematics 266-U-5
Instructor (Shop Practice) 267-P-3
Instrument Maker Aero 093-R-3
Instrument Maker Aero Apprentice 281-S-2
Janitor 094-N-1
Job Foreman Screw Machine Shop 205-R-2
Jr. Aero Chemist (Metals) 192-U-5
Jr. Aero Draftsman 178-P-4
Jr. Aero Eng. 007-P-5
Jr. Architec. Draftsman 274-S-3
Jr. Clerk 268-G-4
Jr. Clerk Accounting 181-F-4
Jr. Clerk Eng. Records 186-D-4
Jr. Clerk Filing 042-H-4
Jr. Clerk Personnel 209-G-4
Jr. Clerk Supply Records 287-I-4
Jr. Cost Accountant 171-C-6
Jr. Electrial Eng 006-N-5
Jr. Mech. Eng. 004-P-5
Jr. Physicist (Aerial Photo.) 124-S-6
Jr. Purchasing Agent 134-C-6
Jr. Radio Engineer 136-N-4
Jr. Stenographer 204-B-4
Jr. Storekeeper 054-I-3
Jr. Structural Eng. 005-O-5
Jr. Telephone Operator 259-E-2
Labor Foreman 250-N-1

Laboratorian (Engineering) 173-P-4
Laboratory Aid 097-Q-4
Laborer 095-M-1
Laborer Classified 096-M-1
Legal Asst. 098-D-8
Library Asst. 043-A-4
Linotype Operator 115-A-2
Liquid Oxygen 286-L-8
Machine & Tool Designer 013-P-3
Machinist 101-Q-2
Materials Testing Eng. 258-S-8
Mechanic Airplane 020-L-6
Mechanic Aviation Eng 029-M-4
Mechanic Auto 028-K-3
Mech. Eng. (Aircraft Arm) 226-Q-8
Mech. Eng. (Aircraft Power Plant) 225-P-8
Mech. Eng. (Automotive) 237-Q-8
Mechanic Helper Airplane 165-L-3
Mech. Helper. Aviation Eng. 255-N-2
Mech. Radio. 137-N-3
Metal Spinner 107-P-2
Metal Tipper 278-N-2
Metallurgist 254-S-8
Metallurgist Associate 108-S-8
Messenger Boy 105-G-1
Millwright 109-J-2
Millwrights Helper 187-J-1
Minor Clerk 045-G-1
Mobile Mach. Repairman 145-P-2
Molder 110-H-1
Nurse's Asst. 102-B-3
Nurse Registered 155-B-4
Observer Flight Test 072-J-6
Office Appliance Repairman 158-F-1
Operator Blue-Print Mach. 113-H-2
Operator Comptometer 114-F-3
Operator Dry Kiln 064-M-2
Operator Linotype 115-A-2
Operator Photostat 199-T-2
Operator Screw Mach. 139-Q-2
Operator Tabulating Mach 117-E-4
Operator Telephone Jr. 259-E-2
Operator Wood Working Mach. 163-J-2
Packer 099-N-2
Painter 119-I-1
Parachute Engineer 120-N-3
Patent Attorney 149-C-8
Pattern Maker 122-J-4
Photographer (Aerial) 196-U-4
Photographer (Commercial) 198-T-3
Photographer (Motion Pictures) 197-T-4
Photostat Operator 199-T-2

Physicist (Aero Instruments)
Physicist Associate (Aerial Ph
Physicist Associate (Aerodyn
Physicist Jr. (Aerial Photo.)
Pilot Airplane Test 150-J-6
Planning Engineer 206-F-8
Planning Eng. Asst. 263-G-6
Plumber 129-R-1
Press Feeder 131-C-1
Pressman 132-B-2
Pressman's Helper 202-B-1
Principal Clerk 041-F-7
Principal Clerk Eng. Records
Production Estimator 046-P-3
Production Supervisor 133-G-
Protection Asst. Chief of Plan
Protection Chief of Plant 200-
Project Eng. Assistant 128-E-
Purchasing Agent Jr. 134-C-6
Purchasing Agent Sr. 135-C-7
Radio Mech. 137-N-3
Registered Nurse 155-B-4
Rigger (Structural) 138-O-1
Screw Mach. Operator 139-Q-2
Sheet Metal Worker 140-P-2
Sign Painter 247-I-1
Sr. Clerk 049-D-5
Sr. Clerk Accounting 180-F-5
Sr. Clerk Disbursing 048-F-5
Sr. Clerk Eng. Records 223-D-
Sr. Clerk Filing Decimal Sys
Sr. Clerk Information 044-C-5
Sr. Clerk Mail 050-G-5
Sr. Clerk Military 051-B-5
Sr. Clerk Payroll 244-E-5
Sr. Clerk Personnel 217-G-5
Sr. Clerk Production 210-C-5
Sr. Clerk Receiving 242-H-5
Sr. Clerk Shipping 182-I-5
Sr. Clerk Supply Records 243
Sr. Clerk Traffic (Knowledge
Sr. Cost Accountant 059-C-6
Sr. Purchasing Agent 135-C-7
Sr. Stenographer 052-B-5
Sr. Storekeeper 146-I-5
Steamfitter 144-S-1
Stenographer Chief 261-B-6
Stenographer Jr. 204-B-4
Stenographer Secretary 203-A
Stenographer Senior 052-B-5
Stock Tracer 185-C-5
Stores' Laborer 067-K-3

FIG. 5



Clerk Personnel Sr 217-G-5
Clerk Principal 041-F-7
Clerk Production Sr 210-C-5
Clerk Receiving Sr 242-H-5
Clerk Shipping Sr 132-1-5
Clerk Sr 049-D-5
Clerk Supply Records Jr 287-I-4
Clerk Supply Records Sr 243-J-5
Clerk Traffic Sr Knowledge of Telegraphy 153-A-5
Clerk Typist 056-D-3
Compositor 157-A-2
Comptometer Operator 114-F-3
Consulting Eng. 057-P-8
Cost Investigator 167-C-7
Division Supt. of Airways 202-J-7
Draftsman Aero Associate 176-Q-6
Draftsman Aero Asst. 177-Q-5
Draftsman Aero Chief 175-R-8
Draftsman Aero Jr 178-P-4
Draftsman Apprentice 062-P-4
Draftsman Architec. Asst. 021-S-4
Draftsman Architec. Jr 274-S-3
Draftsman Cartographic 063-S-5
Draftsman Illustrative 087-T-5
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Electricians Helper 066-N-2
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Eng. Aero Jr 007-P-5
Eng. Aero (Lighter-Than-Aircraft) 238-M-8
Eng. Aero (Propellers) 227-N-8
Eng. Areo (Wind Tunnel) 221-O-8
Eng. Architectural 023-T-5
Eng. Consulting 057-P-8
Eng. Electrical Associate 273-M-7
Eng. Electrical Asst (Aircraft) 230-M-6
Eng. Electrical Jr. 006-N-5
Eng. Industrial 265-G-7
Eng. Industrial Aid 290-I-6
Eng. Industrial Asst. 016-H-6
Eng. Instrument Associate 268-R-5
Eng. Liquid Oxygen 286-L-8
Eng. Materials Testing 258-S-8
Eng. Materials Testing Associate 008-S-7
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Eng. Mech. (Aircraft-Power-Plant) 225-P-8
Eng. Mech. Associate (Specification) 264-S-7
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Eng. Mech. Assist. 240-P-6
Eng. Mech. Asst. (Aircraft Arm) 232-Q-6
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Eng. Radio Jr 136-N-4
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Flight Test Observer 072-J-6
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Foreman Airplane Assembler 283-M-5
Foreman—Airplane Woodworker 194-J-5
Foreman—Aviation Eng. Mech. 270-M-5
Foreman—Carpenter 168-O-2
Foreman—Compositor (In Charge Of Printing Plant) 207-B-2
Foreman—Construction Gen. (Lighter-Than-Aircraft) 147-M-7
Foreman—Electricians (Maintenance) 234-O-3
Foreman—Fabric Worker (Lighter-Than-Air) 279-M-4
Foreman—Gen. (Airplane Assembler) 282-M-6
Foreman—Gen. (Airplane Mech.) 086-L-5
Foreman—(Aviation Eng Mech.) 081-M-5
Foreman—Labor 250-N-1
Foreman—Machinist 076-Q-4
Foreman—Mach. (Armament) 235-Q-3
Foreman—Mach. Asst. 284-Q-3
Foreman—Mach. (Lighter-Than-Air) 224-R-3
Foreman—Metal Shops Gen 077-Q-4
Foreman—Pattern & Model Unit 195-J-5
Foreman—Salvage 275-I-1
Foreman—Screw Mach. Shop Job 205-R-2
Foreman—Sheet Metal 285-P-2
Foreman—Steamfitter 078-R-2
Foreman—Upholsterer 193-1-2
Foreman—Wood Shop Gen. 079-J-5
Foundry Foreman 073-H-1
Garage—Superintendent 074-I-3
General Blacksmith 033-K-2
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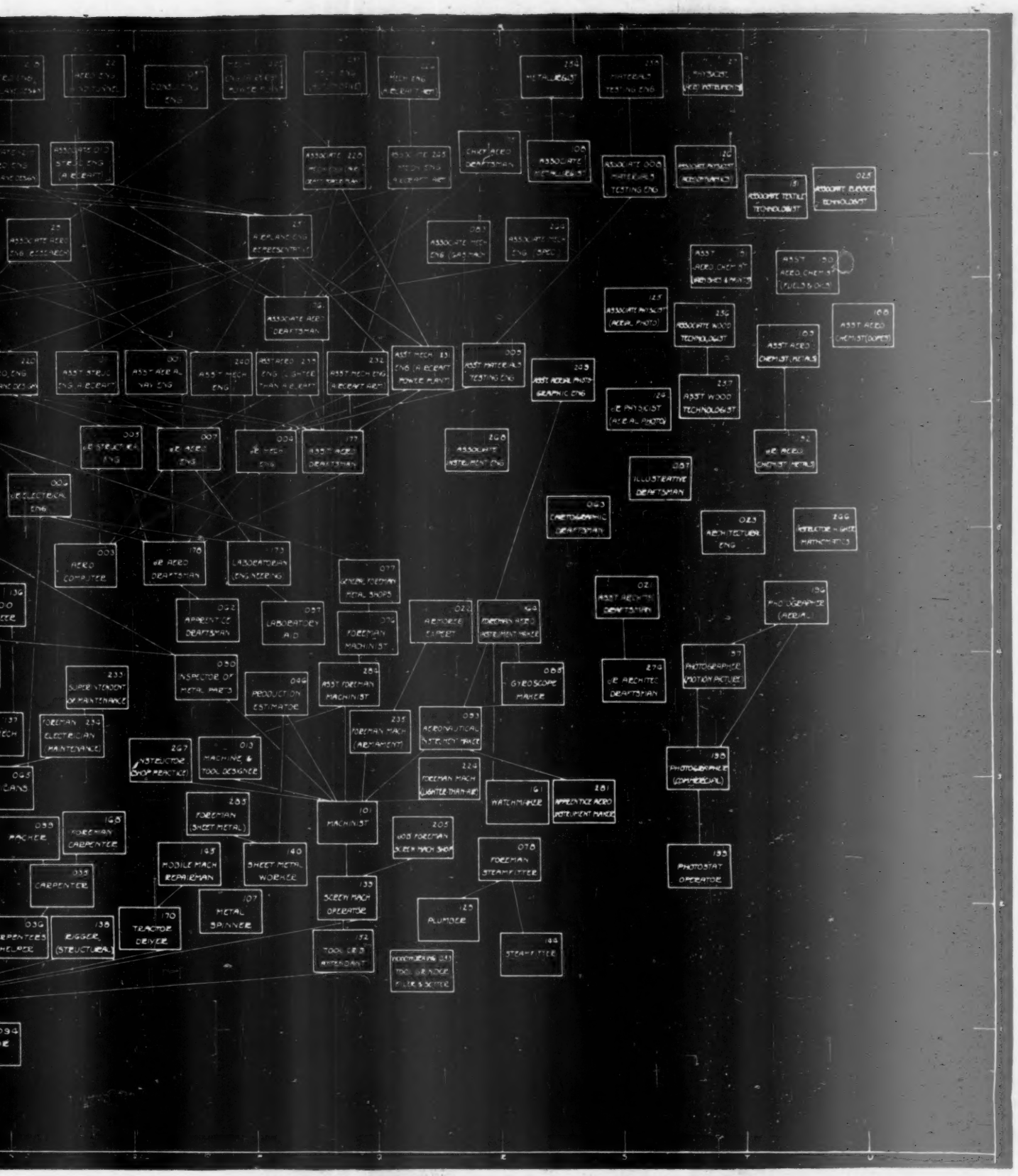
Gen. Foreman (Airplane Mech.) 086-L-5
Gen. Foreman (Aviation Eng. Mech.) 081-M-5
Gen. Foreman Metal Shops 077-Q-4
Gen. Foreman of Construction (Lighter-Than-Aircraft) 147-M-7
Gen. Foreman Wood Shop 079-J-5
Guard-084-C-3
Guide 271-C-3
Gyroscope Maker 085-S-3
Illustrative Draftsman 087-T-5
Industrial Engineer 265-G-7
Industrial Eng. Aid 290-I-6
Industrial Eng. Asst. 016-H-6
Inspector Airplane 015-L-6
Inspector Airplane & Airplane Eng. Chief 211-K-7
Inspector Aviation Eng. 088-M-4
Inspector of Metal Parts 090-P-3
Inspector Wood 091-J-4
Instructor (Aviation Eng.) 269-M-4
Instructor Higher Mathematics 266-U-5
Instructor (Shop Practice) 267-P-3
Instrument Maker Aero 093-R-3
Instrument Maker Aero Apprentice 281-S-3
Janitor 094-N-1
Job Foreman Screw Machine Shop 205-R-2
Jr. Aero Chemist (Metals) 192-U-5
Jr. Aero Draftsman 178-P-4
Jr. Aero Eng. 007-P-5
Jr. Architec. Draftsman 274-S-3
Jr. Clerk 288-G-4
Jr. Clerk Accounting 181-F-4
Jr. Clerk Eng. Records 186-D-4
Jr. Clerk Filing 042-H-4
Jr. Clerk Personnel 209-G-4
Jr. Clerk Supply Records 287-I-4
Jr. Cost Accountant 171-C-6
Jr. Electrial Eng 008-N-5
Jr. Mech. Eng. 004-P-5
Jr. Physicist (Aerial Photo.) 124-S-6
Jr. Purchasing Agent 134-C-6
Jr. Radio Engineer 136-N-4
Jr. Stenographer 204-B-4
Jr. Storekeeper 054-I-3
Jr. Structural Eng. 005-O-5
Jr. Telephone Operator 259-E-2
Labor Foreman 250-N-1
Laboratoris
Laboratory
Laborer 095
Laborer Cl
Legal Asst.
Library As
Linotype O
Liquid Oxy
Machine &
Machinist
Materials T
Mechanic A
Mechanic A
Mechanic A
Mech. Eng
Mech. Eng.
Mech. Eng.
Mechanic
Mech. Help
Mech. Radi
Metal Spin
Metal Tipp
Metallurgis
Metallurgis
Messenger
Millwright
Millwright
Minor Cler
Mobile Mac
Molder 110
Nurse's As
Nurse Regi
Observer
Office Appl
Operator B
Operator C
Operator D
Operator L
Operator P
Operator S
Operator T
Operator T
Operator W
Packer 099
Painter 11
Parachute
Patent Att
Pattern M
Photograp
Photograp
Photograp
Photostat

FIG. 5



Laboratorian (Engineering) 173-P-4
Laboratory Aid 097-Q-4
Laborer 095-M-1
Laborer Classified 096-M-1
Legal Asst. 008-D-8
Library Asst. 043-A-4
Linotype Operator 115-A-2
Liquid Oxygen 286-L-8
Machine & Tool Designer 013-P-3
Machinist 101-Q-2
Materials Testing Eng. 258-S-8
Mechanic Airplane 020-L-4
Mechanic Aviation Eng 029-M-4
Mechanic Auto 028-K-3
Mech. Eng. (Aircraft Arm) 226-Q-8
Mech. Eng. (Aircraft Power Plant) 225-P-8
Mech. Eng. (Automotive) 237-Q-8
Mechanic Helper Airplane 165-L-3
Mech. Helper. Aviation Eng. 255-N-2
Mech. Radio. 137-N-3
Metal Spinner 107-P-2
Metal Tipper 278-N-2
Metallurgist 254-S-8
Metallurgist Associate 108-S-8
Messenger Boy 105-G-1
Millwright 109-J-2
Millwrights Helper 187-J-1
Minor Clerk 045-G-1
Mobile Mach. Repairman 145-P-2
Molder 110-H-1
Nurse's Asst. 102-B-3
Nurse Registered 155-B-4
Observer Flight Test 072-J-6
Office Appliance Repairman 158-F-1
Operator Blue-Print Mach. 113-H-2
Operator Comptometer 114-F-3
Operator Dry Kiln 064-M-2
Operator Linotype 115-A-2
Operator Photostat 199-T-2
Operator Screw Mach. 139-Q-2
Operator Tabulating Mach 117-E-4
Operator Telephone Jr. 259-E-2
Operator Wood Working Mach. 163-J-2
Packer 099-N-2
Painter 119-I-1
Parachute Engineer 120-N-3
Patent Attorney 149-C-8
Pattern Maker 122-J-4
Photographer (Aerial) 196-U-4
Photographer (Commercial) 198-T-3
Photographer (Motion Pictures) 197-T-4
Photostat Operator 199-T-2
Physicist (Aero Instruments) 127-T-8
Physicist Associate (Aerial Photo.) 125-S-6
Physicist Associate (Aerodynamics) 126-T-7
Physicist Jr. (Aerial Photo.) 124-S-6
Pilot Airplane Test 150-J-6
Planning Engineer 206-F-8
Planning Eng. Asst. 263-G-6
Plumber 129-R-1
Press Feeder 131-C-1
Pressman 132-B-2
Pressman's Helper 262-B-1
Principal Clerk 041-F-7
Principal Clerk Eng. Records 222-D-6
Production Estimator 046-P-8
Production Supervisor 133-G-8
Protection Asst. Chief of Plant 060-C-4
Protection Chief of Plant 200-C-4
Project Eng. Assistant 128-E-7
Purchasing Agent Jr. 134-C-6
Purchasing Agent Sr. 135-C-7
Radio Mech. 137-N-3
Registered Nurse 155-B-4
Rigger (Structural) 138-O-1
Screw Mach. Operator 139-Q-2
Sheet Metal Worker 140-P-2
Sign Painter 247-I-1
Sr. Clerk 049-D-5
Sr. Clerk Accounting 180-F-5
Sr. Clerk Disbursing 048-F-5
Sr. Clerk Eng. Records 223-D-5
Sr. Clerk Filing Decimal System 201-G-5
Sr. Clerk Information 044-C-5
Sr. Clerk Mail 050-G-5
Sr. Clerk Military 051-B-5
Sr. Clerk Payroll 244-E-5
Sr. Clerk Personnel 217-G-5
Sr. Clerk Production 210-C-5
Sr. Clerk Receiving 242-H-5
Sr. Clerk Shipping 182-I-5
Sr. Clerk Supply Records 243-J-5
Sr. Clerk Traffic (Knowledge of Telegraphy) 153-A-5
Sr. Cost Accountant 059-C-6
Sr. Purchasing Agent 135-C-7
Sr. Stenographer 052-B-5
Sr. Storekeeper 146-I-5
Steamfitter 144-S-1
Stenographer Chief 261-B-6
Stenographer Jr. 204-B-4
Stenographer Secretary 203-A-6
Stenographer Senior 052-B-5
Stock Tracer 185-C-5
Stores' Laborer 067-K-3
Storekeeper Chief 184-I-6
Storekeeper Jr. 054-I-3
Storekeeper Sr. 146-I-5
Supt. Factory Asst 148-M-6
Superintendent Garage 074-1-3
Supt. of Airways Division 202-J-7
Superintendent of Maintenance 233-O-3
Tabulating Mach. Operator 117-E-4
Tech Editor Aeronautical 272-D-8
Technologist Rubber Associate 025-U-7
Technologist Textile Associate 151-U-7
Technologist Wood Associate 256-T-6
Technologist Wood Asst. 257-T-6
Tool Crib Attendant 152-Q-2
Tractor Driver 170-O-1
Traffic Manager 154-A-6
Translator 183-A-5
Truck Driver 236-L-2
Truckmaster 213-J-2
Upholsterer 159-I-2
Watchmaker 161-R-2
Welder & Brasier 162-K-1
Welfare Supervisor 252-B-3
Welfare Supervisor Asst. 253-B-3
Wood Inspector 091-J-4
Wood Working Mach. Operator 163-J-2
Woodworking Tool Grinder, Filer & Setter 053-R-1

Promotional Chart Instruction

Occupation index—To find the location of any occupation on the chart refer to the letter and figure on the right of the name which are duplicates of those on the margin of the chart and indicate the cross lines at the intersection of which the occupation Sought for can be found.
Occupations—The horisontal positions have no comparison only positions connected by a line of promotion have any relation to each other.

PROMOTIONAL CHART
ENGINEERING DIVISION
AIR SERVICE
McCook Field
Nov. 11, 1922

depends upon the degree to which judgment is based upon *facts*. The purpose of the Occupational Descriptions, and of the Salary Control Charts which are based upon them, is to reveal the facts in each occupation which should have a bearing upon the salary paid for its performance.

In our discussion of the Occupational Descriptions, we made reference to the box at the top entitled "Minimum Requirements." It has been shown that the letter in each subbox indicates the approximate degree to which that factor (education, experience, physical qualities, etc.) should be considered and evaluated in determining the proper salary ranges for the occupation.

In the preparation of the Salary control Charts large sheets of paper, three by four feet, were ruled by the drafting room. Down the left hand column were entered the code numbers and titles of the occupations in numerical sequence. In the next seven columns were entered the letters indicating the "factors" in each occupation.

The rest of each sheet was divided into vertical columns representing dollars of salary per week. In these columns and opposite the names of each occupation, were entered spots (males) and circles (females) for the employees now properly classified in that occupation. As the dot or circle was entered on the Salary Control Chart for each person, his name was entered in a looseleaf binder on a page headed with the title and code number of the occupation; these were typed subsequently and included in the final report as the Occupational Census above referred to.

Inked boxes were also drawn opposite each occupational title to show the executives' and the Employment Manager's ideas of the proper salary limits for that occupation.

A reproduction of the chart is shown in figure 6.

From the section of the report having to do with the Salary Spot Chart, the following paragraphs are quoted:

> The Salary Spot Charts consequently offer a general view of the situation within each occupation, as to the factors existing there, the salaries now being paid and the judgment of the executives as to the proper wage limits. These Salary Spot Charts thus offer the opportunity for the comparative study of similar and allied occupations and with the Occupational Descriptions themselves provide most of the information needed for the wise exercise of judgment as to salary rates.
>
> Of course there are other factors influencing the situation in respect to the salary range for each position which it has not been possible to enter on the charts but which equally require consideration. We refer to such factors as labor supply in Dayton, market conditions, cost of living and funds available.
>
> It is recommended that the Employment Manager and the members of the Planning Section who are involved, use the Salary Spot Charts and the Occupational Descriptions in setting wage ranges, and that they give consideration not only to Minimum Requirements but to Duties, Additional Qualifications, and Hours as well.
>
> It has been found in industrial practice, that the Salary Spot Charts, made over into Salary Pin Boards, comprise an invaluable instrument in personnel control and we recommend that they be made a continuing part of the personnel technique at McCook Field.
>
> On these Salary Pin Boards, each employee is represented by a pin of a color indicating sex, success on the job, failure on the job, etc. as indicated by the foremen

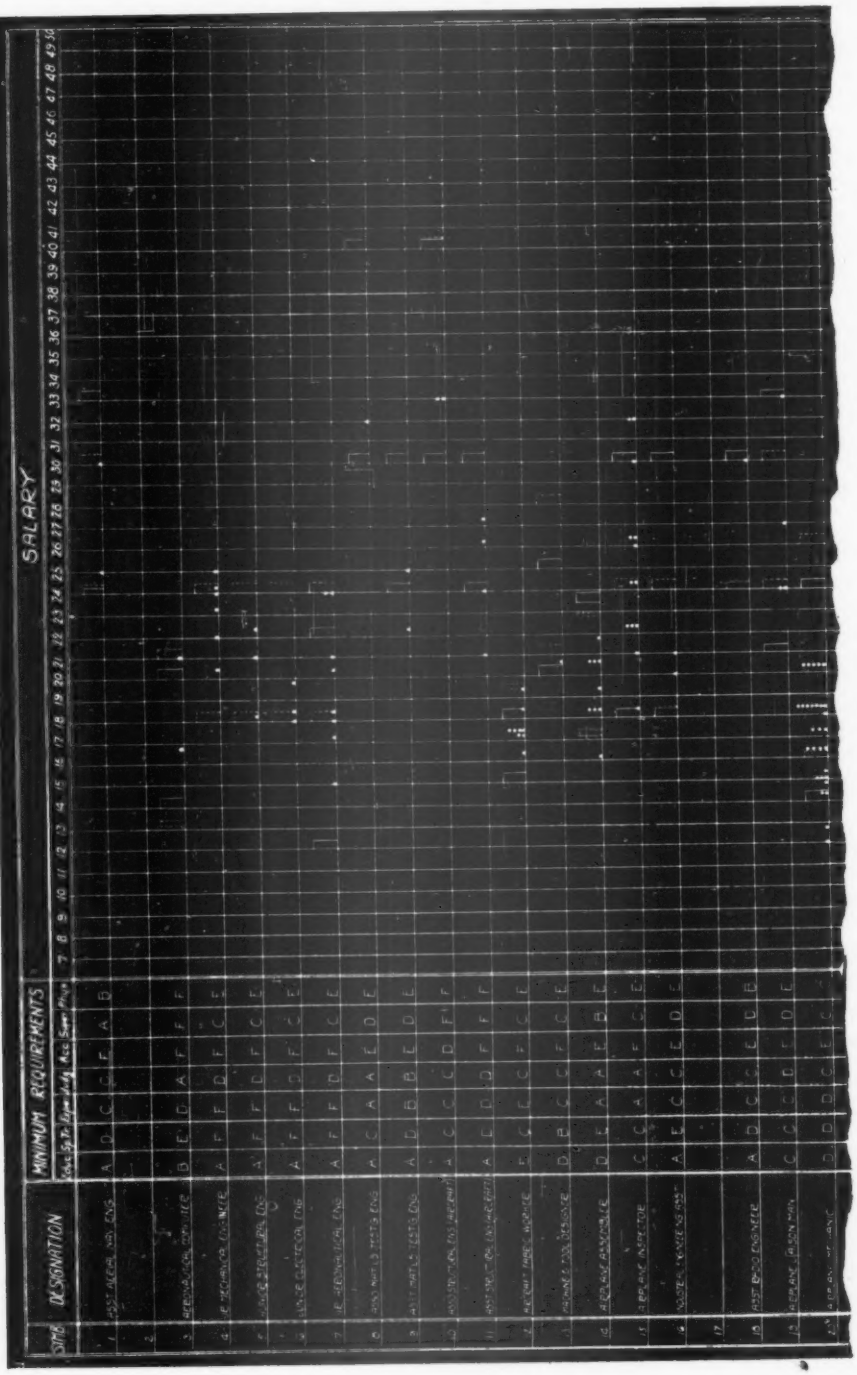


FIG. 6

and executives through the use of some such instrument as the Graphic Rating Scale. Qualification Cards, one for each employee, constructed according to the best industrial practice and giving the same complete information about the abilities, interests, and progress of the employees as the Occupational Descriptions give about the duties and requirements of the positions, are a necessary part of this procedure.

After the proper salary limits have been determined for each occupation, they are indicated on the Salary Pin Boards by boxes. The relation between each individual's salary and the salaries paid others in the same and similar occupations is made graphic and clear, as well as the relation between his salary and the salary limits of his occupation.

Any proposed increase and decrease can then be acted upon with full knowledge as to how that proposed increase or decrease will affect others.

Our letter of transmittal makes reference to a median line midway between the minimum and the maximum for each occupation. This simple device has proved of great value in expense control. If the majority of pins indicating employees are below the median line, an economical situation exists but one which calls for study to make sure such economy is not accompanied by a corresponding inefficiency; if the majority of pins are above the median line, it is costing too much to have the work done. If an employee recommended for increase is below the median line, greater freedom can be exercised in granting it. If he is above the median line, correspondingly greater care will be exercised to require justification for such action.

The Salary Spot Chart is really a personnel control chart when developed thoroughly and integrated with such other personnel instruments as the Qualification Card and the Occupational Description. When so developed, it shows the individuals who are strong and capable in their work, those who are weak and ineffective. It points out the places where constructive effort by the personnel officer is in order. It provides the facts leading to advantageous transfers, special training, personal consultation, promotions and even dismissals.

CONCLUSION

One principle underlay this work, a principle which underlies all constructive personnel work, viz., action must be based on facts. There is no room these days for action based on hunch or on guesswork or on sentimental considerations. It is almost as impossible to tell a man's aptitudes by looking at him or to ascertain the requirements of a given position by casual observation as it is to tell the inherent strengths and weaknesses in a structural beam by a superficial inspection. And in the same degree in which it is impracticable to erect a building with no more reliable data than that, it is impracticable to build an efficient and productive workforce with inadequate knowledge of the "insides" of men—their abilities, their capacity to learn, their inclinations, their interests—and the "insides" of their occupations—the exact nature of the duties to be performed, the special requirements of the work, the responsibilities involved, etc.

In short, personnel management must be based on facts if it is to contribute to production and economy in operation, and facts require adequate methods both of ascertainment and of record. "Information" obtained by casual observation or hunch is certain to be misleading, whereas *facts* ob-

tained by tested, scientific procedure make wise action a reasonable certainty. Similarly data made available by human memory are certain to be less reliable than those recorded and made available by proved records.

Methods and records appropriate for the purpose of making personnel administration effective in its execution, require careful technique in preparation. This standard has been approached as nearly as possible in carrying on the work at McCook Field and the procedure has been rehearsed in this article in the hope that it may be useful to other organizations confronted with similar problems.

The construction of adequate records, however, is only half the battle. If they are not used, or if they are used unwisely, good results cannot be expected. But if placed in the hands of a Personnel Manager in the broadest sense of the word, equipped with judgment, human sympathy and an appreciation of the economic value of proper human adjustments, they cannot fail to yield results in terms of production and lowered costs.

News Notes

AMERICAN PSYCHOLOGICAL ASSOCIATION

The thirty-first annual meeting of the American Psychological Association was held at Boston, December 27, 28 and 29.

Dr. W. V. Bingham, Carnegie Institute of Technology, speaking on "The Possibility of an Applied Psychology," said "there is the possibility of an applied psychology—an independent, technological discipline with its own aims and regulative conceptions. A straightforward recognition of this possibility and of these differentia will have beneficial consequence in the conduct of research, in the editorial policy of the psychological journals, and in the organization of instruction."

Dr. Forrest A. Kingsbury, University of Chicago, described a job grading scale devised and adopted in two leading national banks of Chicago and Detroit. "By means of critical job analyses, data concerning each type of position (several hundred in all) were obtained, and the minimum or standard requirements for each determined. Each job was then graded by assigning proper numerical weight to each of the eleven factors composing the scale, namely: (1) Complexity of duties, 1 to 3 points; (2) executive responsibility involved, 0 to 6 points; (3) responsibility for money or securities, 0 to 4 points; (4) personal contacts with public, 0 or 1 point; (5) sex (weighted if man is required), 0 or 1 point; (6) minimum age at which candidates are ordinarily considered for the position, 1 to 10 points; (7) minimum general education necessary, 1 to 5 points; (8) special training courses necessary, 0 or more points (rarely over 4 or 5 points); (9) previous experience demanded, 0 to 7 points; (10) personal qualities demanded (appearance, vitality, courtesy, perseverance, judgment, adaptability, initiative, directing ability, each in specified degree), 0 to 8 points; (11) minimum degree of general intelligence necessary, 2 to 5 points. Carefully formulated definitions made the assignment of weights quite simple and precise. The sum of the weights is the 'grade index,' and expresses the relative importance of the job. In positions below official rank in one institution it ranges from 7 to 44 points. Graphic comparison of the importance of jobs with salaries now paid can readily be made, and abnormally high or low salaries noted."

Lillian Moller Gilbreth, Frank B. Gilbreth, Inc., in her paper entitled "The Magster" described this instrument as a device equipped with wide angle stereoscopic lenses, which permit viewing as many as a dozen pictures without any movement of either head or pictures. This device, or "Magster," enables the user to see in a leisurely manner all the details of the phenomena of precious skill, automaticity, comparative lag and relativity of simultaneity of the anatomical members and other elements of behavior, of the superskilled and the champion.

In his paper on "The Problem of Vocational Prognosis of College Students," Dr. Edward S. Jones of Oberlin College, stated that a thorough knowledge of the fitness of college graduates for their various vocations is the safest preliminary for a program of vocational and educational advice. Two years after graduation at least one out of five college men is probably inadequately started professionally and feels thoroughly at sea as to what he wants to do. Many such individuals are of superior ability. Prognosis of success may depend upon at least four types of criteria capable of objective treatment, each with peculiar values and defects: performance in school subjects, scores in mental tests, indications of prominence and activity in student interests, and estimates by pro-

fessors or associates in various intellectual and social traits.

"Color Preference and the Munsell System" was the title of the paper read by Dr. Daniel Starch of Harvard University. He described an investigation to determine to what extent the selection and combination of colors according to the Munsell system is in accord with the actual preference of various classes of persons.

Dr. H. S. Langfeld of Harvard University spoke on "The Effects of Colors." He mentioned certain experimental results to show that, contrary to statements in the literature, children at an early age give evidence of a truly esthetic reaction to color.

On Thursday morning a joint session was held with Section I of the American Association for the Advancement of Science. The symposium was "The Application of Psychology." Dr. E. L. Thorndike of Columbia University opened the meeting with a paper on that subject. He was followed by Dr. C. S. Yoakum of Carnegie Institute of Technology, who spoke on "Application of Psychology to Industry." Dr. William Healy of Judge Baker Foundation, Boston, read a paper on "The Application of Psychology to the Study of the Delinquent," while "Psychological Analysis in Industry" was the subject of a paper by Elton B. Mayo, University of Adelaide, Adelaide, South Australia.

At the meetings of Section Q, Education, of the American Association for the Advancement of Science held at the same time, some of the papers read were "Tests of Information and Judgment on International Affairs," J. C. Manry, University of Iowa; "Criteria for the Selection of Competent Judges in the Making of Judgment Scales," S. A. Courtis, Detroit Public Schools; "Analyzing Ratings and Training Raters," F. A. Kingsbury, University of Chicago; "A Vocational Guidance Individual Record Card," H. A. Toops, Teachers College, Columbia; "Is Scientific Vocational Guidance Possible?," J. M. Brewer, Harvard University; "Two Studies with Tests of Character Traits," O. R. Chambers, Ohio State University.

COLLEGE GRADUATES IN BUSINESS

In his annual report to the board of overseers of Harvard University, President Lowell draws particular attention to the rapid increase in the proportion of Harvard graduates who enter commercial and industrial pursuits instead of the professions such as the law, medicine, the ministry or teaching. The number of graduates preferring the industrial and commercial occupations after graduation has increased from 35 per cent in 1896 to 55 per cent in 1916. The ministry and education have been perhaps the hardest hit of the professions. The proportion of graduates sent into these fields is steadily decreasing, whereas throughout the country, the law and medicine hold their own, if they are not actually gaining in strength. Of recent years, the professions have been recruited from the graduates of several hundred colleges, and four or five colleges no longer constitute the main source of supply for them. Since 1910, for example, Harvard College men comprised but one fifth of the membership of the Law School, whereas not many years ago Harvard College furnished more than half.

He says further that the entrance of college men into business should be welcomed rather than regretted. Men of education and ideals are needed in the world of business, no less than they are in the so-called learned professions. . . . . Academic culture and business ability need not necessarily go hand in hand, but the business world assuredly will gain from the labors of the growing army of college graduates, who are choosing it as their life work. If a university education has any value it should enable university men to use their talents in many fields.

MEANS FOR VOCATIONAL TRAINING FOR THE INDUSTRIES

The report of the A. S. M. E. Committee on Education and Training for the Industries, submitted at the Annual Meeting of the Society, December 4 to 7, 1922, deals with industrial education in extension, correspondence, apprentice, shop training, and various other schools. In preparing the

report, the Committee hoped that a careful consideration of it by all concerned in promoting industrial education would result in a coördination and simplification which might be suggestive of a standard code of procedure in vocational training. The report consists of three papers on different sources of such training.

1. James A. Moyer, Director of University Extension, Massachusetts Department of Education, and Secretary of the National University Extension Association, reports on Extension and Correspondence Schools. He gives a survey of existing facilities for correspondence instruction and shows how employees of the industries may best secure the advantages thereof. He calls particular attention to the results of work carried on in Massachusetts and Wisconsin, and concludes with a summary table of the reports received from institutions giving correspondence and extension-class instruction.

R. L. Sackett, Dean of the School of Engineering, Pennsylvania State College, reports on Schools for Apprentices and Shop Training. He describes some of the existing apprentice and shop schools, including:

a. New York Building Congress Apprentice System.

b. Railroad Apprenticeship.

c. Industrial Apprenticeship—particular reference is made to the apprentice drafting course offered by the Westinghouse Electric and Manufacturing Co.

d. National Metal Trades Association.

He then discusses shop training, its pros and cons, its difficulties, wages during the training period, and the selection of men for training. He concludes that in any case more attention should be given to organizing the instruction, to selecting those to be trained with more discrimination, to selecting instructors because of their skill as workers and as teachers, and to so arranging the instruction as to give the new employee the best information available about his job, the methods, materials, and machines used.

3. C. R. Richards, Director of Cooper Union, gives an account of Industrial Education as Represented in Schools, which includes the organized trade schools and vocational education of industrial nature in the public schools. He considers in turn:

a. Evening schools.

b. Part-time schools.

c. Unit-trade schools.

d. Secondary technical schools.

e. Technical high schools.

f. Coöperative schools.

He calls attention to the work being done in the field of foreman training by

a. National conferences of four weeks in length.

b. Demonstration courses or conferences conducted by agents of industrial education service in industrial plants.

c. Publishing results of research and experimental work and distributing this material to persons in the states and industries who are concerned with the problem of foreman training.

The paper concludes with a summary of the results of the Federal Vocational Education Act.

The Committee feels that its foregoing review of the present status of the many types of industrial education proves that such education has already advanced in a truly remarkable way and promises much for the future, and they call attention to the fact that there is an attendance in trade extension courses in New York alone of over 100,000, with approximately 325,000 studying in federally aided vocational schools supported by appropriations of over $18,000,000, together with a record of over 4,000,000 students in the United States having completed correspondence courses. To obtain the greatest advantages, the Committee suggests that each industry should coöperate with the university-extension agency in its state and secure for its employees the additional personal instruction furnished when correspondence instruction is applied for by groups, and the consequent formation of what are called extension classes.

The report is printed in full in the March, 1923, number of Mechanical Engineering.

NATIONAL CHILD LABOR COMMITTEE

The December issue of "The American Child," the organ of the National Child

Labor Committee, gives the following résumé of the year 1922 and plans for 1923:

The two outstanding events in the past year are the publication of the 1920 census child labor statistics, on which we have commented in the November issue, and the decision of the United States Supreme Court declaring the federal child labor tax law unconstitutional. Our August issue indicated the effect of this decision on the public as reflected in the press, and contained a statement of the organization of the Permanent Conference for the Abolition of Child Labor which was formed to consider what measure could be taken to meet the situation created by the Supreme Court decision. We are now supporting the bill for a child labor amendment drafted at this Conference. It was introduced in the Senate by Senator Medill McCormick and is known as Senate Joint Resolution 232.

Field Work in 1922

The members of our field staff have been engaged this year in the following fields:

Alabama. Study of laws affecting children and recomendations for legislation for the state Child Welfare Department.

Iowa. Study of juvenile street work in Des Moines, Davenport, Cedar Rapids and Mason City.

Kentucky. Coöperated with the Children's Code Comission in the drafting and introducing of bills, especially the child welfare commission bill. Brought previous study up to date.

Michigan. Study of child labor in the beet fields. Report will be completed shortly.

New Jersey. Study of the health problems of the Girls' Continuation School in Newark, supplementing our study of last year.

New York. Coöperated with National Child Health Council in the health study in Erie County, New York.

Ohio. Study of child labor in the onion fields, in conjunction with the Institute for Public Efficiency and Department of Industrial Relations. Report will be completed shortly.

Virginia. Coöperated with the Children's Code Commission on important child labor and compulsory school attendance laws which passed.

Short investigations were also made in New York, Nebraska, North Carolina, and legislative assistance was given in Rhode Island.

Legislation in 1922

Eleven states met in regular session. The most important state legislation on child labor and kindred subjects is briefly summarized as follows:

Kentucky adopted several constructive educational measures, and enacted a law to create a child welfare commission to continue the work of the Children's Code Commission.

Maryland established a new Bureau of Child Hygiene in the Department of Health and provided for vocational supervision for mentally retarded children.

New York enacted a children's court act; made changes in the administration of mothers' pensions, in the procedure for issuing employment certificates and in the domestic relations law concerning child placing. The compulsory education law was amended, making it more enforceable.

Rhode Island raised the educational requirement for employment certificates. A 48-hour law for children under 16 was defeated.

Virginia extended the 14-year age limit to include all gainful occupations except agriculture; raised the age limit for street trading; prohibited night work in street trades and required street permits for boys 12 to 16; set a 16-year age limit for boys and 18 for girls for work in specified occupations. Hours were reduced from 48 to 44 for children under 16 in all gainful occupations except agriculture, with an exemption for canneries during vacation. School attendance was made compulsory from 8 to 14 years during the entire school year. The mothers' pension act was extended and legislation relating to juvenile courts, child caring institutions, etc., was also passed. A children's bureau was created within the State Board of Public Welfare.

Plan for the 19th Fiscal Year

The action of the trustees in authorizing a campaign for a child labor constitutional

amendment determines in part our immediate future policy. It is nevertheless necessary to continue active coöperation with our associates in backward states that are attempting to secure advanced legislation, and we conceive this to be in harmony with the purpose of the Board. During the coming year nearly all states will hold legislative sessions and demands for field services, both in investigations and in legislative activities, will be heavy. Even last year it was impossible to meet all the pressing demands upon us. We had calls from sixteen states for general surveys, special studies or legislative assistance which we could not undertake because of limited staff and funds. This indicates how extensive a field of service lies before us if funds and additional workers can be secured. The recommendation of an increase in our annual budget from $100,000 to approximately $185,000 contemplates the expenditure of practically the entire additional sum in the extension of our field work and publicity for the constitutional amendment and our state activities.

AMERICAN FEDERATION OF LABOR PERMANENTLY REPRESENTED IN DIRECTING THE ACTIVITIES OF THE WORKERS' EDUCATION BUREAU

According to the American Federation of Labor Weekly News Service for January 27th, the executive council of the American Federation of Labor has approved the plan submitted by the A. F. of L. committee on education, under instructions from the Cincinnati convention, whereby the Federation will be adequately and permanently represented in directing the activities of the Workers' Education Bureau, New York, N. Y., with which the Federation has hitherto coöperated under a temporary agreement.

"Under the terms of this agreement," declares President Gompers, in a letter addressed to national and international unions, state federations and city central bodies, "an executive committee of nine members was created to direct the policies and activity of the Bureau. The chairman of the Federation committee on education, Mr. Matthew Woll, has been elected chairman of the executive committee of the Worker's Education Bureau, and two other members of our committee, Mr. George W. Perkins and Mr. John P. Frey, have been elected members of the same executive committee."

President Gompers points out that international and national labor union, state federations of labor, city central bodies and all labor organizations directly or indirectly affiliated with the American Federation of Labor are eligible for membership in the Bureau. Provision is also made for individual membership.

Book Reviews

MECHANICAL AIDS FOR THE CLASSIFICATION OF AMERICAN INVESTIGATORS, WITH ILLUSTRATIONS IN THE FIELD OF PSYCHOLOGY

By Harold C. Bingham, Washington, D. C. National Research Council, 1922. (Bulletin Series, Volume 4, Number 22.) 50 pp.

REVIEWED BY DONALD G. PATERSON

One of the necessary prerequisites for improving the science and art of human relations in whatever field you choose is the existence of adequate information concerning the human elements of the equation. The intelligent utilization of such information is of course fundamental but more and more we recognize the need for adequate technique in recording that information and making it readily available. It is obvious that no standardized technique could be applicable to all situations; therefore it is highly desirable that personnel workers experimentally determine the one best method for each specific personnel service, communicating their results to fellow workers with completeness. In this way the personnel movement will be supplied with an ever increasing knowledge of the necessary technique for handling its problems in a variety of situations. The bulletin before us is an admirable example of such necessary and desirable work and should receive careful study by all those interested in developing better technique as a partial means of achieving the larger purposes of personnel.

The bulletin describes in detail the experimental development of the system installed and operated by the Research Information Service of the National Research Council as one of its tools in maintaining an informational clearing-house for the benefit of science and technology. The most important source of scientific and technological information consists in the detailed records of the qualifications, interests and activities of the 14,000 scientific investigators in this country. In recognition of this fact the Research Information Service began its work in 1919 by collecting such information concerning each scientific and technological investigator of importance. The problem immediately arose as to how this mass of personnel information might be organized so that the data would be immediately available when needed.

Preliminary analysis of the problem indicated two chief needs; first, a method of referring to the record of an individual investigator and second, a means of obtaining lists of investigators having prescribed qualifications. To meet the first need was a comparatively simple matter, for all that was needed was a straight alphabetical arrangement of the record cards. Meeting the second need was more difficult and was solved only after a careful consideration of several mechanical devices.

a. Visible filing indexes were found unsuitable for the special problem because they do not function mechanically in producing records with multiple specifications. They do make visible a limited number of facts or specifications about each record yet the *usableness* is limited by the difficulty of keeping in mind more than a few specifications in selecting cards even, though

multiple specifications be the basis of selection. Furthermore, the success of the search for records with multiple specifications is dependent upon the accuracy of the person operating the file. It is obvious that the rejection of visible indexes for this specific project reflects in no way upon the usefulness of visible indexes for other types of filing problems.

b. Vertical filing of record cards, each flagged with visible tabs, was also carefully considered. This method was rejected and for the same reason, i.e., the difficulty and unreliability of hand manipulation and conscious selection of cards according to the demands set by an unlimited combination of specifications.

c. The Hollerith and Powers punch-card systems were next considered. While either of these systems is invaluable in certain filing and tabulating work, yet they were unsuited for the requirements of quickly selecting all cards identical in a number of specifications because these systems necessitate successive sorts of all the cards. In other words they fail to produce all the desired cards without undue delay and labor. The matter of continuous overhead expense and the necessity for careful filing of punch cards when not in use were additional reasons for rejecting these systems.

d. Investigation of the Findex system indicated its suitability for meeting the requirements of this particular personnel project. Findex cards are flexible in that they may record from 1 to 186 facts per card. By the simple device of inserting one rod into the filing container for each specification desired it is possible to cull out all cards meeting the requirements in one operation regardless of how many specifications are involved. This feature of the Findex system led the Research Information Service to give it a thorough experimental trial with a single group of scientists (psychologists) numbering about 500.

The rest of the bulletin describes in detail by pictures, cuts and text all the steps involved in findexing this group of scientists. The preparation of an adequate code for recording the available information about each psychologist was the real task as it is in any systematic method of recording qualifications and activities of people. This procedure is outlined carefully and then a complete statistical report follows concerning the personal activities of American psychologists. Such a "professional census" is of direct interest to those most concerned with the present status and development of psychology, yet the method of making this census, the interrelationship of the facts revealed should be of interest to all personnel men because of the possibility of making a similar "occupational census" of the workers in any industry or organization. An "occupational census" properly conducted and analyzed is really a new tool whereby management may be better informed concerning the human material with which it works. The Mead Pulp and Paper Company, for example, makes such a census annually utilizing the data in the formulation of various labor policies.

The Findex system may be used, then, in analyzing the facts about a group of people in a variety of ways. Its greatest value, however, from the standpoint of daily use, arises from the ease and accuracy with which the cards of those possessing certain prescribed qualifications can be culled out from all of the cards on file. If a personnel system requires the selection of cards on the basis of only one or two specifications, its needs may be met by vertical filing, flagging of cards or visible index systems. If the system demands the identification of those who fulfill a number of really necessary specifications then the Findex method will probably be adopted.

The National Research Council is to be congratulated for publishing this valuable monograph. The experiment was ably conducted by Harold C. Bingham who is also responsible for the preparation of the manuscript. The whole project was subject to the general supervision of Dr. Robert M. Yerkes, Chairman of the Research Information Service.

FORMS, RECORDS AND REPORTS IN PERSONNEL ADMINISTRATION

Edited by C. N. Hitchcock, Chicago, 1922, The University of Chicago Press. pp. 128.

REVIEWED BY DAVID R. CRAIG

Mr. Hitchcock had two purposes in mind for this collection of forms and records: "to suggest the type of data in the field of industrial relations which the management of a business should have at its disposal, the records necessary for its collection and some possible methods of presenting it for administrative use; and, quite incidentally, to illustrate the normal daily routine procedure of a personnel department." The questions which follow each section indicate that it was prepared mainly for university students of administration. But it will be quite useful to employment managers who want to check their forms against a selected assortment, either for revision or supplementation.

Section I contains three functional charts to show the organization of personnel departments, and a schematic arrangement for employment statistics around which the manual is organized. This scheme provides a list of the periodic reports which the research and planning section of a personnel department might be expected to furnish to the major executives of a company; it shows the routine forms from which these reports can be prepared; and the sources of information of the routine forms.

The remainder of the compilation presents a large number of the actual forms used by many important concerns, under six headings: Employment, Training, Health and Safety, Research and Planning, Miscellaneous Forms, and Statistical Reports for Managerial Use.

In most respects these forms fulfill the editors purpose admirably. One feels that university students could handle the material with greater profit if the procedure for each form had been indicated, showing the number of copies of each form made out and the destination of each copy; and if either the name of the company or the nature of the business had been revealed consistently in connection with each form. Some confusion is caused by not indicating the original dimensions of the forms reproduced. To mention the size of each company, indexed by the number of its employees, would be helpful in understanding its forms. It is unfortunate that none of the forms used in so-called "visible" filing are specifically mentioned.

The most serious criticism that can be levelled against the collection is that the forms are not filled out. There is one conspicuous exception. The manual would have been worth three times as much if the reader could see from actual or fictitious examples just what each form does. For example, it is possible that if Form 6a had been filled ont the reviewer would not feel, as he now does, that it is wrongly labelled and misplaced. Instead of being an "interviewer's report on applicant," it seems to be a form for reporting an interview at the time a workman quits.

In connection with each section there is an excellent list of questions which are calculated to guide the reader in studying the forms and in criticising them. In a revision of these questions the author might care to avoid the unwise distinction which he implies between the employment office and the management.

The book certainly fulfills its purpose. But one wishes that the editor had hitched his wagon to a star of greater magnitude and had drawn some inferences from his data. He has made a painstaking survey of the practise of many companies in drafting forms. He is thus in a peculiarly fortunate position to formulate a theory of form-making. There are certain questions which need answering: How does a business determine what forms it needs? How should one go about drafting a form? What are the elements of good forms?

THE YOUNG MAN AND HIS VOCATION

By Franklin S. Harris. 1922, The Gorham Press, New York City

REVIEWED BY JOS. U. YARBROUGH

"The Young Man and His Vocation" is a little volume in two parts by Franklin Stewart Harris, of the Utah Agricultural College. Part I, "The Vocations," after two preliminary chapters justifying and classifying vocations, runs fifteen short chapters, each of which is a light treatise on some trade or profession. Practically all the usual vocations are thus reviewed. Some of these chapters are well done—we cite particularly the one on agriculture; no one of them is without worth in its way. In each of them an attempt is made to analyze the personal qualities requisite to success in the profession under consideration, and in addition the author analyzes the vocation itself, its advantages and disadvantages, its effect upon life and character, in brief fashion.

The second part, "Relation of the Young Man to his Work," is, in the main, a collection of Orison Swett Mardsenisms on such topics as Glory of Work, Industry, Devotion, Enthusiasm, Coöperation.

On the whole, the book is an honest and earnest little work in popular vein, well calculated to make appeal and possible to stimulate thought in a very young man or adolescent youth. Its 'literary atavisms' (the author does deal rather too freely in the 'babbling brook' type of rhetoric, as well as in numerous small preachments) tend to the trite, and certainly it is inconsiderable to the reader who has gone at all seriously into the subject of vocational guidance. But I think it highly improbable that the author was aiming even remotely at such readers. I think he wrote with the 'young man' in his eye, and the very young man, at that.

THE YOUNG MAN AND JOURNALISM

By Chester S. Lord. The Macmillan Company, New York, 1922. xiii + 221 pp.

REVIEWED BY MAX FREYD

This volume is one of a series of twelve books written by representatives of different vocations who "are competent to explain the nature and divisions of the particular vocations which they represent, the personal and educational qualifications necessary for a successful pursuit of the same, the advantages and disadvantages, the difficulties and temptations, the opportunities and ideals; thus, in an adequate way, enabling the student to estimate his own fitness for them" (vii).

The author of this volume was for thirty years managing editor of the New York *Sun*. No exception can be taken to the choice of Mr. Lord to represent journalism. He has tried to be unbiased and "seeks neither to glorify nor to disparage the newspaper."

Any volume in this series, however, cannot fail to glorify the vocation it discusses. These volumes are written by men of long experience, who have an intense interest in their work, and who have achieved success. For these men to minimize the interest of their work or the requirements for their occupations would be contrary to human nature.

If these volumes are to help the college student in his choice of occupation and mold his vocational interests, it goes without saying that they should be complete and unbiassed presentations of the demands and rewards of the particular vocations. In

form they should approach the job analysis and job specifications. In this connection one cannot help contrasting the present volume with "Journalism as a Vocation," an Opportunity Monograph prepared by the Federal Board for Vocational Education. That Mr. Lord has failed to maintain his uncolored attitude can be gathered merely from reading some of the chapter heads: "The Fascination of Writing for the Editorial Page," "The Pleasing Experiences of the Foreign Correspondent," "The Rewards of Journalism—They Are Found Chiefly in Congenial Employment."

Besides its susceptibility to the criticism outlined above, this volume suffers from a merit which is at the same time a drawback. Mr. Lord, it cannot be denied, is an entertaining writer. The journalist, trained in writing for the popular taste and in presenting his material in an attractive manner, cannot fail to place the other authors at a disadvantage.

In spite of a certain looseness of style, this volume will provide a diverting two hour's reading for anyone interested in personnel. Moreover, the author departs from his main purpose in giving valuable suggestions on publicity and the presentation of facts for popular consumption.

PROCEEDINGS OF THE FORTY-SECOND ANNUAL MEETING OF THE NATIONAL CIVIL SERVICE REFORM LEAGUE, WASHINGTON, D. C., DECEMBER 7–8, 1922

The National Civil Service Reform League, New York.
112 pp.

REVIEWED BY WM. E. LANGE

The proceedings of the National Civil Service Reform League at its forty-second annual meeting are set forth in this bulletin. The bulletin contains a report of the Council of the League and a number of addresses made before the League.

The addresses which should interest workers in the field of personnel are:

Reclassification and Removal, by George A. Wales.

Possibilities and Limitations of Psychological Examination Methods in the Civil Service, by L. L. Thurstone.

Address by L. J. O'Rourke.

Mr. Wales advocates a study of the best personnel policies of private and public management towards the end of their application to Civil Service employees. The functions of government have expanded and with this expansion there has come an expansion of personnel. Policies affecting personnel are shaped by departments, bureaus, etc. without any relation to each other. As a result, inequalities in pay, differences of opinion as to the necessary qualifications for a job, designation of the same jobs by different names, and a general lack of harmony, resulted. This led to much waste with increased burden upon the taxpayer.

The necessary steps in improving the situation are, first, a re-classification not only of salaries but also of the jobs themselves. A classification of jobs by duties and proper job titles will broaden the opportunities for advancement. Persons qualified for a more responsible position in another office from the one in which they are employed can be transferred under a proper classification. The second step is an improvement in the selection of new material. This would involve a study of the selective value of the tests used, checked against the actual performance of the persons tested. More adequate personnel control is a necessary step. A central service record system would avoid the present difficulties of promoting employees because of improper job classification, lack of better jobs in their own office, etc. Elimination of inefficients must follow for any improvement to be entirely efficient.

This elimination of the inefficients can be accomplished by the maintenance of performance records.

Dr. Thurstone discussed attitudes towards psychological tests and common misunderstandings relating to tests. Three attitudes exist towards psychological tests. The first attitude is that of the person who regards them as bunk, the second is that of the person who is oversold on the tests, and the third is that of the fairminded person willing to look at all the evidence for and against tests. A most common misunderstanding is the confusion of psychological tests, intelligence tests, and objective examination methods. They are three different things. Psychological tests are tests which measure the mental traits such as ability to visualize, the ability to perceive small differences in color or sound the ability to memorize, etc. An intelligence test is one of the varieties of psychological tests which measures degree of mentality. Its purpose is to measure how much brains an individual has irrespective of education. The objective examination method of conducting examinations is not necessarily psychological. In such an examination, the questions are so arranged and the answers so marked that the personal opinion of the examiner is ruled out as far as possible. Another common misunderstanding relating especially to intelligence tests is that of mental age. The mental age idea works well with children but it does not apply to adults as intelligence is not a close function of our age after the development of childhood is passed.

Dr. Thurstone cites the use of intelligence tests in selecting clerks as illustrating the application of tests to the Civil Service. Four factors are to be considered in selecting clerks: experience, intelligence, schooling, and personality. None of these alone are sufficient to select the best type of clerk. The fewest possible mistakes in selection will be made by selecting those having a high score in intelligence, who have a fair amount of schooling, and who have had some office practice.

Mr. O'Rourke of the examining staff of the Civil Service Commission discussed the selective value of a new clerical test devised by the examining staff. Ninety clerks of the Civil Service Commission were selected and were given three efficiency ratings on a seven point scale. No clerks were selected for test whose three ratings differed by more than one point. The test was then given under examining conditions, and twenty minutes was allowed for the clerical test. Then an additional five minutes was allowed. The twenty minute time-limit was found to be the more satisfactory. A twenty-five minute test was found to be unfair to the rapid worker as it did not give him proper credit for his speed. A study was made of the relative accuracy of slow and rapid workers and the test was then given to five hundred applicants. The one hundred and twenty-five most accurate workers were eighty per cent accurate in their work, while the one hundred and twenty-five slowest workers were only twenty per cent accurate. Further, the production of the fast workers was five and a half times that of the slow workers. Using answers in the test as measures of production, a given task would require five and one-half times as many slow workers as fast workers and the spoilage would be seven times as great. Follow-up studies on the applicants selected by these tests are being made to verify the tests.

Another test is being developed to be substituted for the requirement of a high school diploma. This test was given to ninety general clerks. Out of a possible hundred, the correct answers in forty minutes ranged from forty to eighty. Twenty additional minutes only increased the average score by six points. This indicates that the test measures not only alertness but higher mental factors as well. Before final acceptance of the test, studies are being made to determine the exact degree of intelligence needed for each position.

Mr. O'Rourke's address is interesting and undoubtedly he will shortly have more interesting results to report since he is doing much work along this line.

The remainder of the addresses in the bulletin are interesting to the general reader because they express the views of prominent men. They are, however, not addresses in which the personnel worker would be interested as a personnel worker.

Abstracts

Management's Responsibility for and Opportunities in the Personnel Job. E. K. HALL, Vice-President, American Telephone and Telegraph Co. Address before Pittsburgh Convention of National Personnel Association, November 9, 1922.

The development of industry to its present point of efficiency has brought the workers in industry increasingly greater material well-bring, but it has changed their attitude toward their work from zealous interest to widespread unrest and open hostility to their employers. The reason is that management has been devoting attention too exclusively to machinery and methods, neglecting the human factor. Management has now realized the tremendous waste resulting from insufficient attention to the men of industry and is beginning to remedy some of the evils. In particular, management is learning that there must be teamwork between the three human factors in industry—the owners, executives, and the general forces. In this connection the personnel job was born.

The personnel job consists in giving sufficient intensive attention to the human factors in industry to make sure that the entire human element and manpower in the industry is mobilized for attaining the proper objectives of that industry. Responsibility for this personnel job rests squarely on the shoulders of the management—that is, the executives. The chief executive must furnish the leadership, and assume full responsibility for making the industry contribute to the best interests of the people in it.

The personnel man's job is fundamentally an advisory staff position, advisory to executives. Because the human factor is so closely interwoven with all industrial processes, personnel work cannot be set apart in a department by itself. Things which are done for the benefit of the workers in industry must be done through the immediate bosses of the workers, for these bosses are the strongest points of contact between the management and men. Personnel work must be done through the executives and the regular line organization.

The personnel man cannot accomplish things by authority, or on his own initiative. His advice cannot be forced—it must be sought. No company has in it too big a man for the personnel job.

One notion of personnel work is that it consists in giving employees fair treatment, just wages, excellent working conditions, recreational activities, opportunities for learning, etc. This kind of personnel work fails to produce loyalty or interest on the part of the workers. It does not bring the workers into cooperation with the company, because it does not give them the information necessary to prove that their interests are identical with the company's interests. A sounder theory of personnel advocates letting the workers into the affairs and inside problems of the company. It gives them full information on all matters which concern them, and gives each worker a real status in his industry. Management must not attempt to work out this human relationship problem by handing down something to the workers. Instead it should ask itself the question: How much are we going to *allow* the men and women in the organization to help? Management's opportunity comes in the opportunity to mobilize all the productive power that society has by treating employees more like partners and less like servants.

The Faith of the Industrial Engineer. JOHN CALDER. Survey, November, 1922, Vol. XLIX, No. 3, p. 154.

"Our present problem is to get the *best* to function in leadership of the public, capital, and labor toward attaining the socially

desirable ends of our day . . . . " The present social and industrial system offers unusual advantages not only to men of superior intelligence but also to the average man, and today men are nearer putting their hearts into their work and getting joy out of the job than ever before.

A truer democracy of labor is evolving through the development of industrial unions, and particularly through the organization of all the workers in single plants. Labor organizations must not be judged by their professed social philosophies, but by their conduct. These "beliefs" mean little or nothing to the rank and file of labor, and do not usually affect their working efficiency. Social mindedness and true democracy are growing features in some of the industrial unions. "Employers whose people through wise representation are increasingly sold on the worthwhileness of the business that gives them a good living, have nothing to fear. . . . . "

Real progress comes from lifting the entire social structure through increased production and services, with better distribution. We must restore our worn out industrial machinery. Government cannot raise the standard of living. Capital in America is honestly seeking a solution of industrial problems. Recent experience points to employee representation in its best form—perfect frankness and complete information as the most promising program.

Economic Philosophy of Cooperation. E. G. Hourse. The American Economic Review, December, 1922, Vol. XII, No. 4, pp. 577–597.

Cooperators are long on practice and short on theory. There is a contrast marked by the inveterate theorists such as the socialists and the single taxers. These latter are well drilled in the reasons for the faith that is within them, yet they have been able to produce but scanty actual achievements against the organized opposition of constituted government. The cooperative movement is putting laws on our statute books and giving rise to cases in our courts. It is entering our business institutions. These relations are being made awkward, uncertain, and often disastrous because of a general failure to grasp the principles upon which cooperative organization proceeds.

The movement grew out of the circumstances of the Industrial Revolution and was a reaction against the early abuses or, at least, rigors of the capitalistic industrial system.

Three fundamentals are generally held to have constituted the theoretical basis of their practical success:

1. Increased efficiency or reduced costs of service: no credit, no solicitation, and gratuitous or nominally paid service to members.

2. Popular distribution of savings or profits: minimum interest paid to invested capital, any surplus to go as wage dividends.

3. Democratic control, each member voting as an individual.

In spite of some inter-action among them these three premises represent three salient points of economic theory actuating the cooperative movement as something distinct among forms of economic organization. They register a threefold protest against the costs and waste of the competitive selling system, against capital as the residual claimant of profits, and against the identification of economic control with the stock ownership and accompanying tendency toward concentration and autocracy. The continued adherence of the older bodies and the constant accession of new converts seem to argue that there is in this cooperative philosophy something which must be reckoned with as a factor in the future evolution of our economic life.

A Successful Employee Partnership Plan. Alfred Stuart Myers. Industrial Management, November, 1922, Vol. 64, No. 5, pp. 289–295.

Capital, labor, management and the public are satisfactorily represented in the Dutchess Bleachbury partnership. Boards with definite clearly specified functions effect this representation. A Board of Operatives represents the workers and its

members are elected by the workers' secret ballot. The executive secretary is available for conference with any of the workers. Under the Board of Operatives are the following four standing committees: Working Conditions Committee, Housing Committee, Recreation Committee, and Finance Committee. Employees and capital bear equally the expenses of activities under these committees. A Board of Management has half its members elected by the Board of Directors and half by and from the Board of Operatives. This board adjusts and settles management disputes and is the court of last appeal. The Board of Directors is elected annually by stockholders and is constituted as follows: five representatives of capital and management, a representative of the workers nominated by the Board of Operatives, a representative of the community nominated by the Chamber of Commerce. Knowledge of the affairs of the company is imparted by (1) copies of the audited monthly statements which are furnished the Board of Operatives, (2) an interchange of the minutes of various Board meetings. Stock purchases by employees is made possible on an easy plan. The profit sharing arrangements are: the market wage is paid to labor, six per cent to capital, two sinking funds are then provided for $85,000 each to insure these in times of depression. If some remains after the wages and profits are divided and the funds are completed, it is divided fifty-fifty between the stockholders and mill workers. Losses are met out of subsequent profits before further profits are paid.

Other important features are: life insurance, sick benefits, vacations, safety organization, a definite savings plan, joint management bulletins, foremen's conferences, and general mass meetings. "Bleachery Life" is published once a month and goes into the home of every employee. Its editors are appointed by the Board of Operatives and it publishes labor's point of view as well as capital's. Since the inception of this plan, living and working conditions have been greatly improved, labor turnover steadily reduced from 56.6 per cent in 1919 to 15 per cent in 1922, and though the working week was reduced from 54 hours to 48 hours, production continued within one per cent of previous records.

Research and the Increased Activities of City Government. LENT D. UPSON. American City, November, 1922.

Discoveries of the last fifty years have made the modern city necessary and possible. Great factories necessitate that men live in congested areas. As a result of this congestion, new needs have developed. Further, higher standards of living have created many activities unknown a generation ago. As a result the per capita cost of government has quadrupled and public debts have multiplied. City government has become a technical problem and the effectiveness of the performance of city government can only be judged by intelligent citizen interest and criticism. Plans for governmental changes cannot be made without citizen interest. This interest can only be aroused by placing before the citizen facts gathered through governmental research. Intelligent criticism will be the result. There will then be coöperation between the public officials and the citizens and much good will result. Pure research in public administration to bring about this coöperation is absolutely essential. The mayor of Detroit remarked that "present city government must get less money and more brains." "More brains" means correlated intelligent effort to find better methods of conducting public business.

The Character and Functioning of Municipal Civil Service Commissions in the United States. Report of the Committee on Civil Service Governmental Research Conference of the U. S. and Canada. Submitted at the Annual Meeting, at Cleveland June 1 to 3, 1922.

We are witnessing an ever-growing expansion of governmental functions and an increasing absorption of workers into the public service. For this reason, we should be interested in the conditions and methods of employment in the public

service not only through our concern as tax-payers but also through our concern as the recipients of the service furnished by these workers. This report should, therefore, prove interesting to any reader.

The findings of the committee as given in the report are as follows:

(1) In the main, our civil service commissions have been under political domination rather than under professional guidance, the individual members of commissions usually being appointed more largely on account of political considerations than because of their understanding of employment problems.

(2) Although some of our commissions have shown commendable courage and devotion in carrying out the spirit of our civil service laws, yet generally speaking we have not secured a faithful enforcement of merit principles.

(3) Owing to the high rate of turn-over in the membership of our civil service commissions and the subservience of our commissions to the will of the chief executive, we have not had that continuity of employment policy which is so important to effective administration of the civil service.

(4) Most commissions have performed only a small portion of the functions now coming to be recognized as belonging to the personnel agency of government.

(5) Our civil service commissions as now constituted represent only the management and no effort has been made to give adequate participation to the workers in determining conditions of employment.

(6) In order to correct those shortcomings in the administration of civil service, it is essential first of all to reconstitute our commissions along different lines.

Chapter V entitled "Employment Administration in Private Industry" should prove of especial interest to one engaged in Personnel work. The employment problems of private enterprise are discussed and these problems compared to those of public administration. Despite the fact that there are differences in the problems there are so many points of similarity that the committee feels that they can handle them in the same manner. In other words the civil service commission instead of being merely an employment agency should become a personnel agency with all the functions of the personnel agency of private enterprise.

The committee therefore makes the following recommendations:

(1) The expansion of the civil service commissions to a personnel agency composed as follows:

A civil service commissioner chosen by competitive test, who is to be chairman and executive officer, to serve during good behavior and efficient service at a salary approximately equal to that of other department heads with comparable responsibilities; and two associate commissioners —one appointed by the executive head of the municipality from his administrative staff and one elected by the employees in the classified service. The two associates are to share equally with the commissioners the responsibilities of the legislative and judicial functions, but to act in an advisory capacity only in administrative matters and to serve without additional compensation.

(2) The appropriation of sufficient funds to carry on all of the functions contemplated for the personnel agency.

The Selection and Training of Salesmen. Ernest T. Trigg. Administration, December, 1922, Vol. 4, pp. 665–670.

In this article Mr. Trigg, President and General Manager, John Lucas Company, Inc., describes how his company selects and trains salesmen. Each man hired by the company is regarded as an individual problem and is handled individually. No questionnaires are used, nor is any employment personnel used in hiring salesmen. Interviews with the applicants are conducted by the President and the branch managers. Each applicant is permitted to determine what part of the business he should enter. Few young men really know what they wish to do so the officials of the company outline to the applicant the four general divisions of a manufacturing enterprise:

1. The executive
2. The administrative
3. The productive
4. The division of selling

Most of the applicants snap at selling. As a general rule the men hired are those who are clean-cut, intelligent, and without previous business experience. Once employed, the man is put to work in whatever part of the organization is convenient to the company. He is shifted at intervals from one department to another and thus gets a general impression of the whole business. Often an applicant discovers some department in which he becomes especially interested and decides to make the work of that department his life work. Those applicants who still desire to sell are placed in the sales office for a few weeks. Then they are placed in a territory and for two weeks are under the direction of the sales manager. For the next two months, every night, the new man writes a personal letter to the sales manager and receives personal letters in return. This cements a friendship; after that only reports are made out. At the end of these two months, the sales manager again works with the salesman, corrects his errors, and decides whether the company wishes to continue to employ him. He then leaves him for six months, keeping tab on him and really deciding whether he has the stuff to make good. If he meets the tests at the end of these six months, he is brought into the plant and given three weeks of "practical work and training." He is shown how to use the company's products and is able to answer to his own satisfaction questions which have formerly bothered him. Using this system has built up a very satisfactory sales force for the Lucas Company.

The Training of Institutional Salesmen. HENRY C. LINK. Administration, October and November, 1922.

Describes the changes in selling methods which have come about through the rise of business "institutions" and the new methods of training salesmen which have been necessitated by this institutional development. A business "institution" is "a business enterprise of distinctive characteristics, particularly characteristics which manifest themselves to the buying public through a company's methods of marketing and the quality of its product or service." The chain store is one type of institution. The Liggett Drug chain, the Atlantic and Pacific Tea Company, The Piggly-Wiggly Corporation and others are good examples and illustrate definitely if not comprehensively the elements which . . . . must be present in any business enterprise which aspires to the distinction of being an institution. To enumerate, they are:

1. A product or service of known quality and, preferably, of known price.
2. A distinctive method of marketing.
3. A distinctive sales literature, i.e., trademark, advertising, catalogues, etc.
4. A stable and consistent policy covering every point of contact with the consumer (or with dealer or both) and the mechanism to carry this policy into effect.

When a business concern becomes an institution, it thereby defines its task of training salesmen and sales managers. Various types of institutional selling, such as the branch store type and the dealer type, present different training problems. In the branch store or office type we have a specialized product which requires a special type of service, and a system of distribution, the keynote of which is the company branch store or company controlled agency. Companies of this type are in a position to train their salesmen in terms of their institutional characteristics. Instead of teaching their men to sell, they teach them to sell *something*.

The company which sells through dealers must have such a well-defined and consistent marketing policy that it can be made to prevail over the individuality of the dealer. Training salesmen to sell this policy to dealers is training in institutional selling. Such training will not result in automatons or deprive salesmen of individuality, initiative and originality. While it will limit the salesman's activities in certain respects, it will also set him free to use his resourcefulness to the best

advantage in putting the sales program across.

The training of institutional salesmen cannot be conducted as an activity in itself. It must be an exact reflection of the sales department itself. . . . . The student who goes into the field must find the stage already set for the methods which he has been instructed to use. The elements of the training course, eleven in number, follow:

(1) *A Knowledge of Products.* Some products require a great deal of technical information—of just what the machine will do.

(2) *Factory Training.* The more technical the product the more helpful such experience is in the making of sales. Factory men with sales aptitudes should be sought out as material for the sales force.

(3) *Instruction in Marketing Methods.* A company which has an institutional policy cannot afford to entrust its execution to the individuality of untrained salesmen. Much of the necessary training in the details of this policy can be accomplished in training classes.

(4) *Knowledge of Competitive Goods.* If a company is superior to its competitors in product, in price, in advertising, in marketing methods, or in any other respects, the practical course is certainly to acquaint its salesmen with these facts so that they can make an intelligent comparison and concentrate on the points of superiority.

(5) *Training with Senior Salesmen.* The gap between the classroom and the field is so great that unless it is properly bridged, many prospective salesmen will fail to cross it successfully. The practice of starting new salesmen out under the close supervision of senior salesmen is a good plan, provided the senior is well-grounded in institutional methods.

(6) *Coördination Between Advertising and Selling.* Comprehensive training alone can insure proper interpretation of the company's advertising to the buying public.

(7) *Training Through District Sales Branches.* Training at branch offices allows emphasis on local conditions and is cheaper, but admits of too much flexibility due to individual differences of branch managers. Where branch training is used, the first step must be the training of district managers.

(8) *Training by Correspondence.* A salesman's training is never complete, since changes in selling methods constantly arise. Training by correspondence is effective in so far as the company can make sure that the salesman actually reads and digests the training material.

(9) *The Sales Convention.* Conventions intended to inspire and enthuse salesmen accomplish little. But group meetings can be of real value if the salesmen meet in small study groups to receive specific help on actual field problems.

(10) *Visual Instruction.* More than 75 per cent of what salesmen learn is learned through the medium of vision. Instruction which makes full use of pageants, plays, demonstrations, charts, motion pictures, etc., gets results where oral instruction fails.

(11) *Training by Educational Agencies.* Institutional training obviously cannot be done by any agency except the institution itself. However, educational agencies may train prospective salesmen in the fundamentals of all selling such as a knowledge of human nature, human motives, various types of marketing methods, etc.

The Great Need for Commercial Training. H. S. Noel. Pamphlet reprinted from the Journal of the American Pharmaceutical Association, October, 1922, Vol. XI, No. 10 (an address before the Section on Commercial Interests, A. Ph. A. Cleveland meeting, 1922.)

Is pharmacy to continue to delude itself into thinking that the time will come when the learned apothecary will again come into his own? The folly of such a course is pointed out by showing how different present trends are. Where drug store items numbered 2700 in 1890, they number 46,000 today. He also quotes the Harvard Institute of Business Research to strengthen his point. This organization investigated the business of 187 drug stores ranging in sales from $10,000 to those over $100,000. The largest number of

stores did volumes of between $40,000 and $50,000. Of the 187 there were 85 that furnished figures on prescription filling in proportion to the percentage of total rates. The lowest figure was 10 per cent, the highest 45 per cent. Most interesting, however is the fact that the common figure was 10 per cent. The sales of proprietary medicines reached as high as 67 per cent in some stores, with the common figure at 22 per cent. The prescription business together with proprietary medicines, commonly amounted to only about one-third of the total sales.

Would hair nets, bathing suits, phonographs and a la carte lunches be economic necessities as side-lines if there were enough legitimate drug business to test the capacity of the stores? But what does the average college of pharmacy graduate know about advertising, selling, mark-ups, etc., when he leaves college? What equipment has he other than training as a pharmacist that enables him to go out and apply economic laws to his profession? What training in fact, does his college course give him to assist him in building a good prescription business? Furthermore, what student can afford to attend a school of pharmacy requiring three years or more of study for a degree with the prospect of going out into the commercial world and demanding of a proprietor a salary commensurate with his training and skill, when he knows that the owner of the business requires only 10 per cent or less of his time at the prescription counter? To the drug store proprietor, the clerk is an investment: he is paid in proportion to what he brings in returns.

That such a condition continues to exist is largely the fault of well-meaning schools of pharmacy that go on teaching the same subjects year after year and giving practically the same training to their students that obtained in 1890 when drug-store items numbered 2700 instead of 46,000 as they do today. Let us keep up the standard of entrance requirements to schools of pharmacy. Let us continue to instruct our students in the subjects now being taught, but with a due consideration of what they will be expected to need when they enter into business for themselves, or seek employment in drug stores. The properly trained business man—pharmacist will think better of the drug business as a calling if he knows how to do business.

It is sincerely to be hoped that our schools of pharmacy may see the wisdom of including pharmaceutical business training in their courses of study, or at least, of giving the students the option of shaping their courses to meet their needs.

An Investigation of the High School Principalship as a Profession. EUGENE M. HINTON. The Phi Delta Kappan, November, 1922, Vol. V, No. 1, pp. 10–21.

Describes favorable and unfavorable features of the profession of high school principals along with the desirable qualities, preparation and experience necessary for such a career.

By means of a questionnaire sent out to one hundred persons, either high school principals at the present time or formerly, the following conclusions were presented:

1. Favorable features

(1) Affords opportunities for responsibility early in life.

(2) Large percentage of men entering principalships temporarily found their work so attractive they remained in the profession permanently.

(3) Offers opportunities to develop skill in applying knowledge of educational methods.

(4) Principals of larger schools freed from teaching duties and responsibilities may devote all of their time to administrative duties.

(5) Principals enjoy numerous privileges through contacts with state associations, commercial clubs and various fraternal organizations.

(6) Offers opportunities for personal betterment.

(a) Professional advancement to positions of greater responsibility through experience, professional literature, professional meetings and summer school attendance.

(b) Economic advancement through increase in salary schedule; promotion to higher position; wise investment of earnings; incomes derived from lecturing, evening school teaching, special summer instruction and professional writings.

(c) Recreation, "catching-up" and self-improvement through home study, research, and summer school attendance.

(7) Young men of exceptional and superior abilities have wide opportunities for advancement to positions of large responsibility and "respectable" incomes provided they possess administrative ability and personality and have the necessary professional preparation.

2. Unfavorable features

(1) Limited number of principalships in comparison with superintendencies and teaching positions restricts opportunities for satisfactory positions.

(2) Demands of community on principal reduce amount of time and energy available for developing administrative efficiency.

(3) Small salary in comparison with other professions requiring similar amount of preparation.

(4) Principal frequently limited in his ability to realize educational ideals by:

(a) Narrow, conservative school-boards.

(b) Poorly qualified teachers.

(c) Conservative and critical church organization.

(d) Politics.

(e) Low community standards.

(f) Lack of funds for adequate equipment and sufficient salaries for better teachers.

A list of items to be stressed in presenting the subject to high school students and the method of presenting these items is given.

Is Our Education a National Menace? The Survey, November 15, 1922, pp. 252–253.

In 1910 the State Bankers' Association of Minnesota, investigating the results of education, came to the conclusion that our educational system was wrong in that it was intended for the sons of wealthy men who never intended to work. Although supposed to fit them to be gentlemen, it failed in that and in addition did not fit them to meet the practical affairs of life. At the same time, in Chicago plans were worked out to separate the school system of Illinois into two systems—one for those children who through necessity or desire were to go into industry, and one for those who were going into lives requiring more education. The American public did not take kindly to such suggestions as they felt practical training was not educational. Discussions on the subject were swallowed up in the subject of War. Again murmurs are being heard against the educational system. There is much talk of limiting the education of persons in accordance with their intellectual ability. To cure our educational problem though, we must realize that it cannot be cut off from life and experience. Education isolated in schools is bound to lose itself. The solution to our educational problem can only be found "in the courageous, analytic, inventive, social intelligence of educational statesmen who look facts in the face, using the intelligence they recommend to others in dealing with their own problems."

A Report on the Correlation of Psychological Tests with Academic and Manual Subjects. IRENE GLENN. The Journal of Educational Psychology, November, 1922, Vol. XIII, No. 8, pp. 496–500.

The work reported on is a part of the research which is being supported and conducted by the North Bennet Street Industrial School, Boston, Massachusetts and was undertaken on the hypothesis that individual differences in vocational fitness exist among children of the ages found in the grades preceding high school, and that they exist to such an extent that all children cannot efficiently be included in the same curriculum.

The subjects for the experiment were in the grades VI, VII, and VIII and the following tests were used:

General Intelligence. Binet-Simon (Terman Revision, Abbreviated Scale)

Pintner non-language Mental Test. Myer's Mental Measure.

Academic. Woody-McCall Mixed Fundamentals, Form II, Trabue Language Scale C, Thorndike Scale Alpha 2 (Parts 1 and 2) for Measuring the Understanding of Sentences. Directions Test (hard).

Motor Tests. Healy Psychomotor (tapping) Test (used as a group test), Star Test (individual), Well's Peg Test (individual), Paper-folding Test (individual), Lane Test (individual).

For each of the standard tests, the procedure and scoring used was that given by its author.

Each teacher was given detailed instructions for ranking pupils on class work. The method used was that of selecting the best, the poorest and an average child, then selecting the children whose ability was between the extremes and the average and finally filling in all others in relation to these five. The coefficients were calculated for each class separately, the footrule formula being used and R transmuted into r.

Tables are given showing "Averages of Coefficients of Correlation for General Intelligence and Academic Tests with School Subjects" and "Averages of coefficients of Correlation for Motor Tests with School Subjects." These correlations are, on the whole, low since the groups were small and fairly homogeneous.

The test results confirm the hypothesis regarding the differentiation of abilities at the ages represented by the subjects in the experiment. Speaking very generally these abilities may be grouped as relating to language or to motor facility, and this broad differentiation is substantiated by comparisons of the ranks of the children in the various class subjects. The average correlations between the different academic subjects are from 0.60 to 0.80, whereas a comparison of academic subjects with hand work gives average coefficients varying from 0.12 to 0.42.

With so little correspondence between proficiency in the academic subjects and proficiency in motor tests or motor work, the writer states that the academic record alone would be an entirely inadequate basis for guidance to such courses of training. Also that, considering the tests as a basis, we find that it will be necessary to work out combinations of tests diagnostic of capability in each subject.

Analysis by means of correlations of the abilities demanded by school subjects, is offered as the means that will in all probability aid in the better formation of courses of study and in the solution of problems of individual adjustment.

Attention, Distraction and Fatigue. F. C. Dockeray. Journal of Comparative Psychology, October, 1922, Vol. II, No. 5, pp. 331–370.

Includes the unfinished work of Miss Emily Berger, University of Kansas and the work of F. C. Dockeray who concluded the experiment. The work was designed to study certain factors involved in the capacity for mental work, or activity, under various conditions of distraction and mental and physical fatigue.

The sounder test was used in various forms all based upon some definite reaction to a given signal or stimulus. One type is that in which the subject pressed a key upon hearing a particular sound.

The conclusions arrived at are, briefly:

1. The sounder test is a severe test of ability to attend to a single stimulus or discriminate slight differences in a group of nearly equal stimuli, but due to the narrow span of attention required, a subject may effectively master the situation under unfavorable conditions.

2. The sounder test is fairly well adapted to determining individual differences in ability to overcome distraction.

3. The test may be adapted to determine individual differences in attention to an auditory stimulus.

4. There was no noticeable fatigue of the sense organs involved.

5. The sounder test should prove a satisfactory test for the investigation of the effects of fatigue, low oxygen, ventilation, tobacco and drugs.

The Economic Importance of the Safety Movement. H. WEAVER MOWERY. Industrial Management, December, 1922. Vol. LXIV, No. 6, pp. 355–357.

An article recently published in "Industrial Management," presented a decidedly pessimistic view of the status of the safety practice, and the vital importance of safety work. The author sees no reason for pessimism, but rather a call for action.

Any movement as thoroughly imbued with the crusading spirit as were the initial stages of the Safety First campaign, was bound to suffer a reaction especially at a time when the public had become desperately weary of drives and crusades. A loss of popular interest was to be expected and can be discounted. Of more direct effect was the fact that the introduction and maintenance of safety measures requires an expenditure of capital. However large the prospective saving, capital in 1921 was practically unobtainable for anything but quick turnover and guaranteed returns. It is then not surprising that safety, sanitary, and welfare workers, all regarded as spenders, found it difficult to retain their places.

Figures reporting the value of investments in safety in six well known industrial concerns show a decrease in accidents in these concerns ranging from 76 to 87 per cent between the years 1919 and 1920. In another concern, if the accident rate of 1913 had continued, their liability fund expenditure would have totaled $2,454,133 instead of $1,073,151 in 1921. In other words, their safety measures prevented an additional expenditure of $1,380,982 which cost $602,124—a considerable portion of which was spent for safeguarding of a permanent nature.

Safety engineering is a recognized profession. Consulting safety engineers may be retained who are already handling the safety work of a number of clients. Lower risks mean lower insurance rates. In the inauguration of safety measures, it is of primary importance that the responsibility be centralized. If this man is a trained safety engineer all the better but if the industry cannot afford an additional salary some one in the organization should be designated to carry out the work. Safety is not a philanthropic undertaking but it is a straight business proposition.

The Effects of Cigar and Cigarette Smoking on Certain Psychological and Physiological Functions. ROBERT LEE BATES. The Journal of Comparative Psychology, October, 1922, Vol. II, No. 5, pp. 371–423.

This experiment carried on at Johns Hopkins University was for the purpose of checking the results obtained by D. I. Carver who had found that smoking caused a decrease in accuracy of throwing, within a short period after the smoking. The experiment called, in both cases, for the throwing of darts at a target.

The test consisted in throwing 12 sets of darts, 25 to the set, every day for twenty-seven days. The first 7 days was a practice period only. Non-smoking and smoking days were then allowed to alternate until ten days of each had been concluded, making in all twenty-seven days for each of the three reactors. On smoking days the reactor refrained from smoking each day preceding the giving of the test, but smoked one cigar or two cigarettes in the fifteen or twenty minutes immediately preceding the throwing of darts, other conditions remaining the same as on non-smoking days. Each reactor confined himself to either cigars or cigarettes.

Personal notes on the six reactors are given by the author.

From daily and average scores the experimenter concludes that the immediate effects of moderate smoking (1 cigar or 2 cigarettes) vary from negligibility to slight disturbances of accuracy by the smoking; results quite in accordance with Carver's findings.

The actual distribution of darts shows less variation on smoking days even though the total throws of all reactors which completely missed the target were 240 on smoking days, 208 on non-smoking.

A comparison of the graphs of the values of the set averages for the combined reactors shows a higher average score for non-smoking days over smoking days for the

early part of the hours: then a slump followed by recovery. The tendency is to postpone the slump that appears in all cases after the initial spurt.

The individual differences in the vertical and horizontal distribution of darts on the target show up very clearly but these do not seem to be effected by smoking or abstinence.

The speed of throwing shows but a negligible difference under the two conditions.

The article is well illustrated with seven graphs, nineteen tables and two figures.

Improved Medical Supervision in Factories. Dr. W. F. Dearden. Welfare Work, November, 1922, Vol. III, No. 35, p. 203.

The English Factory Act of 1901 legalized the affixing to certificates of fitness of conditions respecting or specifying the particular employment to be followed in the case of workers entering employment under 16 years of age.

Weaknesses of the Act are:

1. There has been no "follow-up" of the recommendations of the examining surgeon.

2. The quality of the examinations has not been extremely high due to the low fee for examination.

3. The age limit of 16 is too low since now young people tend to go to school longer and enter work at the age of 18 or over. Further, a young person barred from an occupation which is unhealthful has only to wait two years and engage in the work despite the fact that due to his adolescence he is still subject to the same dangers as two years previous.

4. There are no re-examinations. Such re-examinations should be given for they tend to show whether the worker can stand the strain of the work.

The Relation of Welfare Work to Outside Organizations. Miss K. E. Wilkinson. Welfare Work, November, 1922, Vol. III, No. 35, pp. 204–205.

Welfare work is often found to be developing in a haphazard fashion under the pressure of circumstances due to the fact that its relationship to other work has not been properly recognized. Welfare work concerns itself primarily with the workers during their working hours and by coöperation with other organizations can avoid much duplication of effort. Coöperation is essential since welfare work concerning itself with human beings becomes connected with a variety of problems in other fields. Certain bodies are expert in certain work, and to them this work should be assigned.

England's Verdict on Unemployment Insurance. A. S. Cheyney. The American Labor Legislation Review, Vol. XII, No. 3, pp. 175–177.

When the British Government decided successively on the introduction of accident, health and unemployment insurance, it found the heart of the people laid up with its treasure in little friend-in-need societies that meant to their members not merely money laid by but an offensive and defensive alliance, a rock of safety and a bond of loyalty which they were not prepared to desert at the invitation of a far-off government. Accordingly the government did what is so easy that it might have been expected to make trouble. It swore in deputies. That is, every little two-penny ha'penny benevolent association, if solvent and reputable, was made an agent of the government, responsible for insuring in its name.

There are those who thought at the time it would be better for the government to become its own insurer and pay benefits directly. This no doubt would have been more economical than the supervision of a great many "approved societies" and would have made possible closer coöperation by leaving the way open for direct pressure on industry for better management of its affairs. But the man who is used to paying his mite to his own chosen society would be loath to count out his pennies into the vast hard palm of the public exchequer, and the government did not want to take the money through the devious and untraceable channels of taxation but, at least in part, directly and of knowledge from the beneficiaries. Thus it accepted the situation in all its complications without attempting to force an unwelcome and

artificial simplification. Naturally social insurance was accepted and naturally also it does not yet work entirely smoothly.

If you listen to comments on any type of social insurance made by its administrators and by the mythical beings, the general public, you may get the impression that it is a rank failure. If, however, you remember the ways of the English and ask whether this is the case you will probably meet a full denial.

The Campaign against Unemployment in Sweden. Dr. E. G. Huss. International Labour Review, November, 1922, Vol. VI, No. 5, pp. 721–734.

It is only since the war that unemployment has become a serious problem in Sweden, an agricultural country with relatively little large scale industry. Municipal authorities had put in hand public works to take care of seasonal fluctuations and from 1902 onwards employment exchanges were developed. Trade unions also instituted unemployment funds.

The outbreak of war brought a severe crisis and a Government Unemployment Commission was set up. It suggested that factories should work short time rather than discharge employees, persuaded municipal authorities to proceed with public work and instituted special relief work.

Sweden felt the full force of the trade depression which swept over the world 1920–1921. By December, 1921, the Trade Union reported one-third of their members unemployed. The responsibility for dealing with the unemployment situation rests on the communes and the Government Unemployment Commission acts as supervisor and advisory body, while the central government also makes extensive grants of funds. Sweden made a vigorous attempt to meet the situation by providing work rather than unemployment benefit and seems to have been fairly successful in this policy despite a certain amount of discontent at its methods of administration.

Unemployment allowances were made available for those who could not be absorbed on the relief works and all who received this benefit were bound to attend specially organized training courses.

Labour Legislation in Greece. Prof. A. Andreades. International Labour Review, November, 1922, Vol. VI, No. 5, pp. 690–720.

Greece was very late in enacting legislation to protect the worker because she had no large-scale industry, also because of the state of politics. Once a start was made, a legislature code was quickly developed. Before 1909, the government had established special funds to which employers and employees contributed in the specially hazardous industries, such as seafaring, sponge-fishing, mining, railroading.

In 1909 was set up a Ministry of National Economy, part of which later developed into a Labour Department assisted by a Supreme Labour Council and an Advisory Labour Council composed of representatives of workers and employers. There was much legislative activity in the decade 1910–1920. Acts were passed on hygiene, workers' safety, hours of labour, women's work, mining, wages payment, trade union regulation, etc.

It is suggested that hours of labour will tend to be longer in Greece than in more northern countries, as the Greeks owing to climatic conditions, cannot work with the same intensity and assiduity as their northern neighbors. Also children tend to develop physically and intellectually more rapidly than in other European countries, so that the prohibition of employment for boys extends only to 12 years.

Greece has had interesting experiences with attempts to solve the unemployment problem. The government has made money grants to employees who have been displaced by the introduction of machinery and this has led to results worthy of study.

The Coal and Rail Strikes. Need of Permanent Official Fact-Finding Commissions. Danger of Ill-advised Arbitration Legislation. Alexander M. Bing. The American Labor Legislation Review, September, 1922, Vol. 12, No. 3, pp. 150–154.

The simultaneous occurrence of two nation-wide strikes in basic industries of the country—the coal mines and the

railroad shops—has brought to many people a realization of the danger that lies in faulty industrial relations. Mr. Bing points out that just as "knotty cases make bad law" so unusual conditions frequently result in unwise legislation.

At the bottom the issues in both controversies are the same: a determination by the workers that the process of a labor "deflation" which has been going on during the last two years shall cease—a determination not to yield all war time gains and go back to the conditions of under-payment from which many of the workers suffered before 1917. The strongly organized men have naturally been less affected by this process than those who were unorganized. The members of powerful labor unions have seen their less fortunate fellows suffer a succession of wage reductions by which their compensation has dropped to the pre-war level and perhaps in some cases lower. It was the determination of many of the unions to put a stop to this continuous lowering of wages which was one of the main factors in bringing about the recent series of disturbances.

The action of both the miners and the railroad men have made it abundantly clear that arbitration, by itself, will not serve to keep the peace, for they have persistently refused to submit their cases to the decision of any arbitral body. The reason is that labor—always more or less suspicious of the courts and of all judicial process—has been dissatisfied with almost every important wage award which has been made since the armistice. Rightly or wrongly, it has felt that arbitral bodies have leaned toward capital and have failed to give labor its due.

The important thing now is the future. With these strikes ended the thing to do now is to adopt such measures as will tend to produce greater industrial justice and to give reasonable promise of industrial peace. The coal strike has shown the need for a greater knowledge of the facts. The miners claim that the operators are making huge profits; that freight charges are unequal and in many cases exorbitant; that the coal dealer—both wholesale and retail—is a profiteer. The public wants cheaper fuel and the operator says that the only way it can be obtained is by reducing wages. The miner answers that a wage reduction would mean only a slight decrease in price whereas an elimination of exorbitant profits would make a large reduction possible. What are the facts? Knowing them we might not be able to solve all the problems of the coal industry, but we would be in an immeasurably better position to judge the merits of a controversy. A public opinion, enlightened with a knowledge which a fact-finding body could have provided, would probably have prevented the occurrence of the recent strike or forced an early settlement.

A permanent fact-finding commission should be created for the coal industry and similar bodies should be provided for the metal mining and other basic trades. It should be adopted as a national policy that every able-bodied worker is to receive at least enough to provide a minimum living in accordance with decent American standards. There is no economic necessity nor is there any excuse in public policy for the attempts which have recently been made to return to sub-normal pre-war standards. It is not only inhuman but it is incredibly short-sighted to attempt to do so. Suitable national and local machinery of a voluntary nature should also be created for the arbitration of industrial disputes but no attempt should be made to coerce either side into the acceptance of arbitral processes.

The New Management in Great Britain. A. P. M. Fleming and J. G. Pearce. Industrial Management, November, 1922, Vol. 64, No. 5, pp. 257–261.

Contrasts management in Great Britain with that in the United States. British industrialists generally are not yet thoroughly convinced of the merits of American methods of scientific management. Different labor, market, raw material supply, and geographic conditions will not permit of the British direct adoption of our

methods. Use of specialists and consultants is not common with them. Employment departments, purchasing departments and costing systems are features of scientific management which appeal to British managers. The advantage of adding stability in times of crises by vertical combination is just being realized but public opinion and the British fiscal system bar the formation of horizontal organizations. Management in Great Britain is reported as becoming corporate and functional.

Time Study in the Day Work Shop. HOWARD W. DICKSON. Industrial Management, November, 1922, Vol. 64, No. 5.

Discusses means of obtaining proper standard conditions for the time study and outlines the procedure used.